

A HISTORY OF  
AGRICULTURE  
IN THE STATE  
OF NEW YORK



ULYSSES PRENTISS HEDRICK



2/22



1875



GEN



3 1833 01795 0137

GENEALOGY  
974.7  
H359H



---

*Donated to the Genealogical Society Library by*

---

*Thomas J. Kemp*

---

*P.O. Box 4050*

---

*Stamford, Ct. 06907*

---







A HISTORY  
OF AGRICULTURE

DATE MICROFICHED

FEB 04 2003

PROJECT and

FICHE #

G.S.

CALL #

ZLIB USCAN

13460

6005695













LE RAY DE CHAUMONT  
First President of the New York State Agricultural Society



# A History of Agriculture

## IN THE STATE OF NEW YORK

*By*  
ULYSSES PRENTISS HEDRICK



GENEALOGICAL DEPARTMENT  
CHURCH OF JESUS CHRIST OF  
LATTER-DAY SAINTS

ILLUSTRATIONS SELECTED BY THE AUTHOR

U. S. / CAN  
974.7  
H2hu

*Printed for the*  
NEW YORK STATE AGRICULTURAL SOCIETY

1933

WITHDRAWN  
From the Family  
History Library

COPYRIGHT, 1933, BY  
ULYSSES PRENTISS HEDRICK  
FOR THE NEW YORK STATE AGRICULTURAL SOCIETY

PRINTED IN THE UNITED STATES OF AMERICA  
BY J. B. LYON COMPANY, ALBANY, N. Y.

CCF 274670



## PREFACE

**T**HE author hopes that any one who opens this book will take time to read its brief preface. In it the plan, purpose, and limitations of the book are set forth so that the reader may quickly come to a conclusion as to whether he cares to turn the pages that follow. Under the assumption that a reader will be disappointed in a history that does not contain what he expects—first, what will not be found.

This is not a history of agriculture as an economic activity. The economist may close the book at once. Nor is it a textbook. The student will find matter much better worth study in cyclopedias. Nor, again, is the book written for scientists. Truth is, the author has studiously avoided all the jargon of science. It is not a source-book of statistics; it is not a treatise of agricultural philosophy; it does not tell how to farm; nor draw lessons from how our ancestors farmed.

The changing social scene in rural New York, people, not things, have lured the author. He has tried to give an account, in the first chapters at least, of communities of farmers shaping the destinies of their common life as they took possession of a new land. He has written of changes and movements which have multiplied the conveniences and pleasures of farm people. The table of contents shows chapters on farm organizations and their effect; transportation and communication; the printing press and the farmer; New York's share in the invention of farm machinery; the introduction of foreign plants and the domestication of native esculents; something about the derivation of the State's livestock; advancement in agriculture and science. All has been written for the farmer's fireside, not the study, classroom, or office.

The history begins with the early settlements and ends with the nineteenth century. The account has not been brought down to the present time for the twentieth century ushered in an almost new set of agricultural problems—organization, cooperation, farm economics, rural sociology, and industrialism. These new forces

## P R E F A C E

are making changes so profound and they are so far from finished that a history of them needs the perspective of time.

This history was written at the request, almost at the express command, of the State Agricultural Society. The book is published by the State through authorization of the Legislature of 1931 and Governor Franklin D. Roosevelt as a part of the centennial celebration of the State Agricultural Society.

The act making possible the printing of the history empowered the Commissioner of Agriculture and Markets and the State Historian to have the work prepared and published. To Commissioner Berne A. Pyrke and Charles H. Baldwin, his successor, and to State Historian Alexander C. Flick the author is indebted for help in planning the book. He must make further acknowledgment to James D. Lockett, a colleague, who has read the manuscript and proofs and helped in many ways in seeing the book through the press.

ULYSSES PRENTISS HEDRICK

GENEVA, N. Y.  
JUNE 30, 1933



# CONTENTS

CHAPTER	PAGE
I. THE FOREST . . . . .	1
II. INDIAN AGRICULTURE . . . . .	20
III. LAND . . . . .	40
IV. THE AGRICULTURAL LEGACY OF THE COLONY . . . . .	64
V. MIGRATIONS . . . . .	84
VI. AGRICULTURAL ORGANIZATIONS . . . . .	112
VII. SUSTAINING INDUSTRIES . . . . .	134
VIII. TURNPIKES . . . . .	165
IX. COUNTRY LIFE A HUNDRED YEARS AGO . . . . .	189
X. COUNTRY FOOD AND DRINK . . . . .	217
XI. WATERWAYS . . . . .	236
XII. RAILWAYS . . . . .	255
XIII. SOME CURIOUS INTER-RELATIONS OF RELIGION AND AGRICULTURE	269
XIV. HUMAN LABOR DISPLACED BY MACHINERY . . . . .	287
XV. THE PRINTING PRESS AND THE FARMER . . . . .	307
XVI. FARM CROPS . . . . .	330
XVII. LIVESTOCK INDUSTRIES . . . . .	355
XVIII. HORTICULTURE: "AN ELEGANT BRANCH OF HUSBANDRY" . . . . .	380
XIX. THE STATE AIDS AGRICULTURE . . . . .	405
XX. READJUSTMENTS . . . . .	433





ILLUSTRATIONS

HALF-TONE INSERTS

	FACING PAGE
Le Ray De Chaumont . . . . .	Frontispiece
An Early View of New Amsterdam . . . . .	2
Wild Animals of New Netherland Which Never Existed . . . . .	6
The Virgin Forest in the Adirondacks . . . . .	16
Map of the Six Nations . . . . .	20
Earliest Picture of the Turkey . . . . .	22
Indians Planting Corn and Beans . . . . .	24
Indians Boiling Maple Sugar . . . . .	34
Two Livingstons Prominent in Agriculture . . . . .	56
Newly Cleared Land in New York . . . . .	66
A Farm House in the Genesee Country . . . . .	74
Backwoodsmen . . . . .	78
Forest Scene . . . . .	86
Rochester in 1812 . . . . .	94
Two Types of Log Houses . . . . .	98
An Embryo Town . . . . .	104
Elkanah Watson . . . . .	122
A Load of Logs from the Adirondacks . . . . .	136
Log Drive, Glens Falls . . . . .	138
Charcoal Kilns . . . . .	142
Trotting Cracks at the Forge . . . . .	144
The Gristmill at Sudbury, Massachusetts . . . . .	146
Boiling Maple Sap . . . . .	150
The Teasel, Showing Plant, Button, King, and Queen . . . . .	158
The Carriage in Which General Lafayette Rode from Canandaigua to Geneva in 1825 . . . . .	166

# ILLUSTRATIONS

	FACING PAGE
Turnpikes in Western New York in 1809 . . . . .	168
A Stagecoach . . . . .	172
Cayuga Lake Bridge . . . . .	176
A Typical Toll Gate . . . . .	180
A Covered Bridge . . . . .	186
Early Types of Lamps . . . . .	192
An Early Farmhouse . . . . .	214
Gridirons, Toasters, and Roasters . . . . .	218
Old Tavern Signs . . . . .	228
Beekman Arms, Rhinebeck, N. Y. . . . .	232
An Old Tavern, Kingston, N. Y. . . . .	234
The Clermont as She Looked a Few Months After Launching . . . .	236
On the Hudson at West Point . . . . .	238
Early Steamboats . . . . .	240
The Great Erie Canal . . . . .	244
The Erie Canal at Buffalo . . . . .	248
A Packet Boat on the Erie Canal . . . . .	252
The Doughty Little DeWitt Clinton Engine and Train . . . . .	256
Erie Railroad at Hornellsville, 1874 . . . . .	258
A Wild Cat Train . . . . .	260
Early Express Train . . . . .	260
Railway Cartoon of the 1880's . . . . .	264
The Adams Express . . . . .	266
The Shaker Village at Mt. Lebanon . . . . .	272
Jemima Wilkinson . . . . .	278
The Bloomer Costume . . . . .	284
Wooden Plows of the Colonial Period . . . . .	288
A Seneca County Plow in the Year 1792 . . . . .	290
Harrows of the Colonial Period . . . . .	292
Gaelic Header, Described by Pliny, A. D. 70 . . . . .	296



ILLUSTRATIONS

	FACING PAGE
An Early Form of the Self-rake Reaper—The New Yorker . . .	298
The Evolution of the Thresher . . . . .	304
A Picture of Indian Corn . . . . .	334
The Great Elector, Frederick William, with His Consort, Inspecting Potatoes Planted in the Berlin Lustgarten . . . . .	338
The Red Kidney Field Bean, Derivative of the Indian Bean . . .	342
Champions of Tile Drainage . . . . .	348
Messenger . . . . .	356
Sun Beau and Man O' War . . . . .	358
Peytona and Fashion in Their Great Match for \$20,000 Over the Union Course, Long Island, May 13, 1845. Won by Peytona . .	360
Stephen Moulton Babcock . . . . .	364
Dairy-like Majesty and Elista's Golden Fern 3d . . . . .	368
Cock and Hen of Plymouth Rock, White Leghorn, and Rhode Island Red : . . . .	374
American Turkey Cock in the Wild . . . . .	376
Turkey Hen and Her Brood. She Retains Her Wild Instincts . . .	378
William Robert Prince . . . . .	380
A Group of Western New York Pioneer Horticulturists . . . .	382
Newburgh, a Derivative of the American Red Raspberry . . . .	390
Charles Downing and Andrew J. Downing . . . . .	394
A Worker in Floriculture, the Latest Horticultural Industry . . .	402
Samuel L. Mitchill and DeWitt Clinton . . . . .	406
New York Agricultural Experiment Station Buildings in 1882 . .	414
Whitman Howard Jordan and E. Lewis Sturtevant . . . . .	416
Ezra Cornell and Isaac Phillips Roberts . . . . .	422
View of the State Fair Grounds at Auburn, 1846 . . . . .	428
View of the State Fair Grounds at Saratoga, 1847 . . . . .	430
Hyde Park—The Home of David Hosack, a Country Gentleman of a Hundred Years Ago . . . . .	436

# ILLUSTRATIONS

## TEXT FIGURES AND MAPS

	PAGE
Early Map of New York . . . . .	2
Pigeon Net . . . . .	8
A Short Description of the American Colonies Belonging to the Crown of Great Britain . . . . .	12
Aborigine Smoking . . . . .	29
Map of the Genesee Country . . . . .	54
Title Page of the First Printed Description of the Genesee Country .	55
Proclamation to Arrest Rioters . . . . .	58
Early Method of Pounding Corn . . . . .	68
The Earliest American Catalog of Fruits . . . . .	73
Reward for Runaway Servant . . . . .	78
Title Page of Transactions of the Society of the State of New York for the Promotion of Agriculture, Arts, and Manufactures . . .	114
Title Page of the Cultivator . . . . .	121
Title Page of Elkanah Watson's History of Agricultural Societies .	125
Notice of Coopering Business . . . . .	138
Advertisement for Ashes . . . . .	140
Blacksmith's Shop . . . . .	145
Advertisement of Merchandise . . . . .	200
List of Goods Offered for Sale in a Country Store . . . . .	201
Advertisement of Hatters' Supplies . . . . .	202
Advertisement of Lottery Tickets . . . . .	204
Menu of Old-time Farm Supper Given by the New York State Agri- cultural Society in Honor of the One Hundredth Anniversary of Its Founding, 1832-1932 . . . . .	219
Advertisement of Beverages . . . . .	226
Advertisement of Groceries . . . . .	227
Advertisement of the Opening of a Boat Line from Albany to the West	241
Home of the Oneida Community, 1854 . . . . .	281
Log Boat of Early Settlers . . . . .	289



ILLUSTRATIONS

	PAGE
Log Sled of Early Settlers . . . . .	289
Jethro Wood's Cast-iron Plow . . . . .	291
The Plow of the Early Egyptians . . . . .	292
Hatch's Sowing Machine . . . . .	294
Hussey's Reaper at Work . . . . .	298
The Wheeler Mower of 1860 . . . . .	301
Revolving Horse Rake . . . . .	303
Title Page of the New England Primer . . . . .	308
A Page from the New England Primer . . . . .	310
Title Page of a Farmer's Almanack for 1810 . . . . .	313
Bookseller's Notice of 1838 . . . . .	316
Title Page of the Genesee Farmer for 1841 . . . . .	320
A Picture of the Potato from Bauhin's Prodromos, 1620 . . . . .	340
Advertisement of Fertilizer for Sale . . . . .	348
Title Page of the Horticulturist . . . . .	395
Richard Wilcox's Apparatus to Determine the Requisites for Germination . . . . .	410
Farmers' Institute Program . . . . .	427





**A HISTORY  
OF AGRICULTURE**



## CHAPTER I

### THE FOREST

**J**OHAN VERRAZZANO, a Florentine enrolled in the service of France, was the first European to set foot on soil in what is now New York. The year was 1524. Agriculture is indebted to Verrazzano more than to most explorers in the New World because upon his return to France he published the first good description of North America, a description so glowing that the French were incited to make further explorations with a view to settlement. Ten years later, Jacques Cartier sailed up the St. Lawrence and planted a short-lived colony of French in Canada. A second and a third time Cartier ascended the St. Lawrence, and so established a French claim for the domain that borders what is now northern New York.

The redoubtable Henry Hudson in the little ship *Half Moon* entered "the great streame" which bears his name in the late summer of 1609 and pushed up the river with the hope that he had found a waterway to China. The *Half Moon* explored the river to the present site of Albany. Hudson quickly realized that he had discovered a country of transcendent importance, for his log-book enumerates the potential wealth of the river and valley in fish, game, lumber, fruits, grains, vegetables, and furs. Hudson had been employed to make the voyage by a company of Dutch merchants, and abandoning the discovery of a route to China he hastened back to Amsterdam to disclose to his Dutch employers the commercial value of the splendid forests and fertile lands and the surpassing beauty of the country he had discovered.

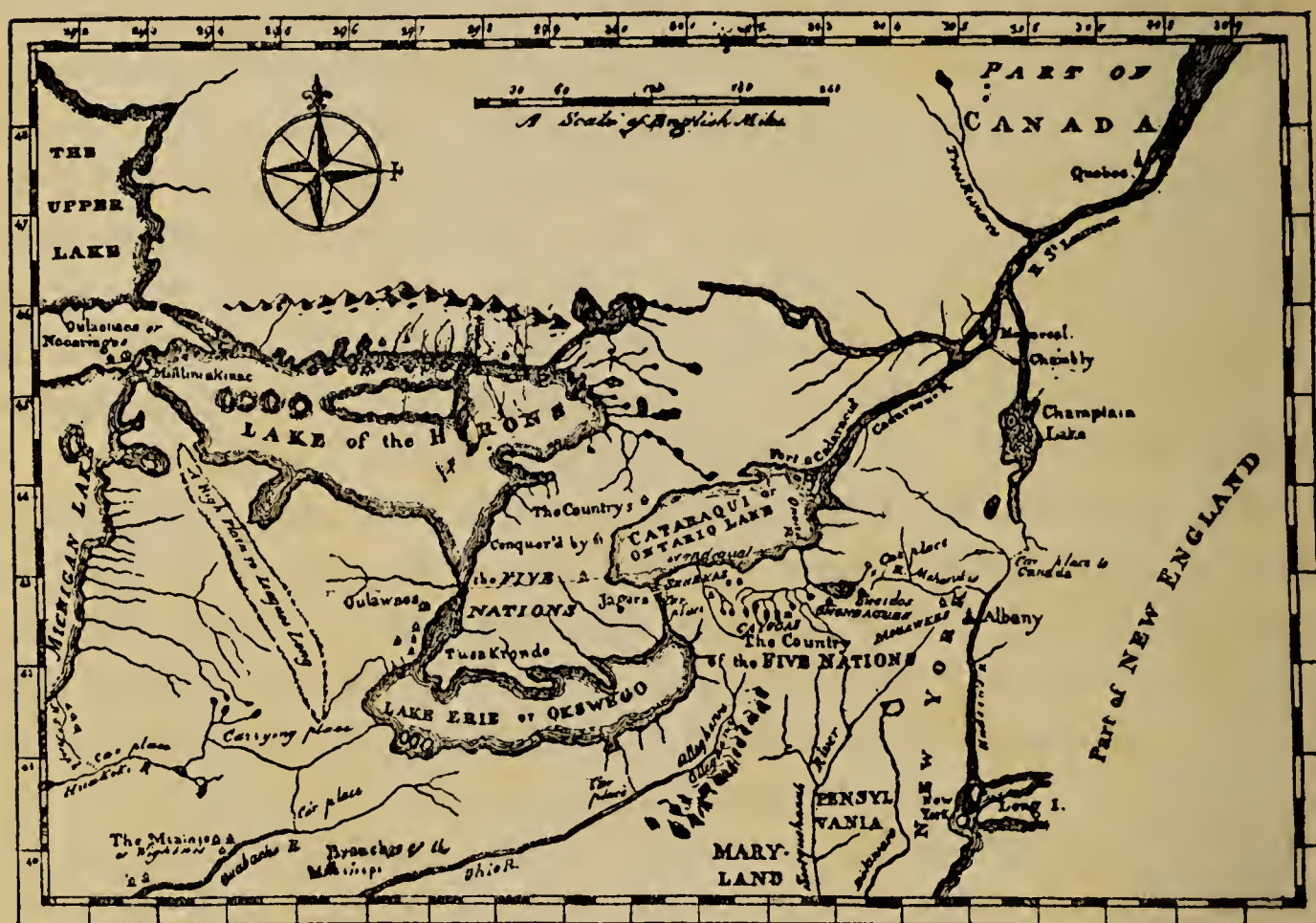
The account of Hudson's voyage moved the Dutch merchants to prompt action. Trading ships, one after another, were sent across to barter with the savages and report further on the country. Generous cargoes of furs with handsome profits attended these ventures and forts were built on Manhattan Island and just below Albany. In 1623, thirty Dutch families were put ashore on



## A HISTORY OF AGRICULTURE

Manhattan Island to make the first permanent settlement in New York. The story of the colony and the conduct of its governors, Peter Minuit, Wouter van Twiller, William Kieft, and Peter Stuyvesant, all inspiring figures, are about the first historical attainments of every schoolboy. The country was named New Netherland, the settlement at the mouth of the Hudson, New Amsterdam.

The Dutch did not long retain possession of New Netherland. The English claimed North America by virtue of the discoveries of John Cabot who had skirted the coast of the continent in 1497



EARLY MAP OF NEW YORK  
*From Colden's History of the Five Nations, 1727.*

and whenever war was on between the English and the Dutch, New Amsterdam was open to attack by English ships. That which the Dutch feared happened in 1664 when a British squadron appeared off New Amsterdam and demanded the surrender of the town. Stuyvesant would fight but his counsellors would not and the Dutch flag fell to be replaced by that of England. New Netherland was renamed New York and came into the possession of the Duke of York, brother of Charles II, King of England.





AN EARLY VIEW OF NEW AMSTERDAM  
Arnoldus Montanus, 1671







## THE FOREST

The bits of history in the preceding paragraphs are just sufficient to establish the right to settlement in New York by three European nations. The French quickly made colonization in New York impossible, except along the northeastern boundary, when, by joining the Hurons in battle against the Iroquois on the shores of Lake Champlain, they gained the enmity of a confederacy of the most ferocious and determined Indian tribes on the continent. The battle on the shores of Lake Champlain in 1609 not only kept the French from settling northern and western New York, whereby much of the State would have had a different agricultural aspect than it now has, but delayed the settlement and agricultural development of a great part of New York by the flames, pillage, and sanguinary strife of continuous Indian warfare between French and Huron on one side and English and Iroquois on the other. For two centuries the Dutch and English settlers in New York, except in a narrow strip along the Hudson, were at the mercy of northern foes; in farm and village the war whoop sounded and men must sleep with their guns beside them.

The descriptions of the Atlantic seaboard published by Verrazano, of Cartier's St. Lawrence, and of Hudson's river valley set fire the imagination of Europeans. But the first settlers in the new land were disappointed. Of gold and silver, pearls and precious stones, there were none. Nor were there supplies of the base metals; copper and lead were not to be found and the store of iron was small and hard to make usable. The forest was the only immediately available asset on land. Or was the forest a liability? Would not a prairie have been of greater worth? In the absence of mineral wealth, the forest turned out to be a prime possession. Its products were the sole source of capital and an ever accessible provider and storehouse of shelter, food, and raiment. To live, forest products had to be made use of until the wilderness should be subdued. "Rock-ribbed and ancient as the sun", the hills of New York would have remained without value to agriculture had they not been clothed with forests.

New York, be it recalled, is triangular in shape with a breadth from east to west of 326 miles and on the line of the Hudson from north to south 300 miles. Two islands, Long Island and Staten Island, add to its territory giving a grand total, including inland

## A HISTORY OF AGRICULTURE

waters, of 49,204 square miles. It is a region of mountains, plateaus, plains, and valleys, each having a more or less distinct soil and climate so that the twin builders of successful agriculture, diversity and fertility, have a fair field and have given New York a greater diversity of crops than any other state in the Union, and, acre for acre, the richest production. There are thousands of lakes and ponds in the State. The largest lake entirely within the State is Lake George, followed closely in size by Oneida Lake. In the west central part of the State is a series of peculiarly elongated bodies of water called the Finger Lakes, of which Skaneateles, Owasco, Cayuga, Seneca, Keuka, and Canandaigua (there is music in the names) are largest and range from 11 to 40 miles in length. In the extreme western part of the State is Chautauqua Lake. All of these bodies of water profoundly affect the agriculture of the regions in which they are located, as do the larger boundary ones of Erie, Ontario, and Champlain, and the Atlantic in even greater degree.

New York has a coast line of 75 miles on Lake Erie and 200 miles on Lake Ontario. The ocean coast line, though short, is by far the most frequented by commerce of any salt water touching the shores of the continent. The Hudson, pouring into the ocean, forms a branching bay, the best protected harbor of our Atlantic seaboard and a natural opening to a water-level highway leading through the State and into the interior of the continent. Along this waterway the agriculture of the State first unfolded and reached high development.

The waters of the lands, lakes, and ponds of the State find their way to the ocean through four great drainage systems. The Great Lakes, the Finger Lakes, and most of the small lakes and ponds and several considerable rivers go to the Atlantic through the St. Lawrence. The Hudson and its tributaries take an independent course to the sea. A relatively small part of western New York drains by the way of the Allegheny, Ohio, and Mississippi into the Gulf of Mexico. Near Olean the head waters of Canadea and Oil creeks approach each other and during freshets mingle their waters; and at such times, brook trout, conceivably, may swim back and forth between the Gulf of St. Lawrence and the Gulf of Mexico. A large area in southern



## THE FOREST

New York is relieved of its surplus waters by the Susquehanna, emptying into Chesapeake Bay, while a much smaller area to the east is drained into Delaware Bay by the Delaware River. These natural water courses, rivers, lakes, ocean, encouraged early occupation of the land by Europeans both because they made transportation and commerce possible and because the rivers and streams furnished unsurpassed water power. Agriculture, the backbone of the colonies and states for 300 years, prospered in New York above any other Atlantic state by reason of forest resources, much fertile soil, diversity of crops, supremacy in water transportation, and abundance of water power.

From this summary glimpse of the rivers of New York let us turn to the forests which they watered and nurtured. Endless forests, black, untrodden, silent as the grave, covered the land when Europeans first sighted it. The forest was the most intimate and significant feature in the surroundings of the first European settlements. So thick set were the trees and so dense were the boughs and leafage that a savage might skulk from the Hudson to Lake Erie without once exposing himself to the glare of the sun. To the intruders from over-seas the forest must have been a seat of wonder, mystery, a promise of wealth, and a constant lure for exploration and settlement. Of the primitive forests of Maine, different not at all from those of New York, Parkman writes:

“For untold ages Maine had been one unbroken forest, and it was so still. Only along the rocky seaboard or on the lower waters of one or two great rivers a few rough settlements had gnawed slight indentations into this wilderness of woods, and a little farther inland some dismal clearing around a blockhouse or stockade let in the sunlight to a soil that had lain in shadow time out of mind. This waste of savage vegetation survives, in some part, to this day, with the same prodigality of vital force, the same struggle for existence and mutual havoc that mark all organized beings, from men to mushrooms. Young seedlings in millions spring every summer from the black mold, rich with the decay of those that had preceded them, crowding, choking, and killing each other, perishing by their very abundance; all but a scattered few, stronger than the rest, or more fortunate in position, which survive by blighting those about them. They in turn, as they grow, inter-



lock their boughs, and repeat in a season or two the same process of mutual suffocation. The forest is full of lean saplings dead or dying with vainly stretching towards the light. Not one infant tree in a thousand lives to maturity; yet these survivors form an innumerable host, pressed together in struggling confusion, squeezed out of symmetry and robbed of normal development, as men are said to be in the level sameness of democratic society. Seen from above, their mingled tops spread in a sea of verdure basking in light; seen from below, all is shadow, through which spots of timid sunshine steal down among legions of dark, mossy trunks, toadstools and rank ferns, protruding roots, matted bushes, and rotting carcasses of fallen trees. A generation ago one might find here and there the rugged trunk of some great pine lifting its verdant spire above the indistinguished myriads of the forest. The woods of Maine had their aristocracy; but the axe of the woodman has laid them low, and these lords of the wilderness are seen no more."

The early settlements in New York were near the ocean or the Hudson chiefly because the first Europeans hesitated to venture into the wilderness. Every man fears the forest if he does not know it; if he can not find his way about in it; or if he cannot subsist without the artificial things of life. Even though he may not fear it, every man dislikes the forest unless he has had pleasant memories of it in all seasons of the year burned in his mind by long days and nights spent in adventurous life in the wilderness. Europeans coming to America feared and disliked the forest; shivered at the terrors of conflicts with wild beasts or savages; pictured its dark caves with ferocious animals and horrid serpents which never existed. The early accounts of over-seas explorers are full of absurd statements about the wild life of American forests. It takes as many generations to make a woodsman as it does to make a gentleman. The fear and dislike of the wilderness, not lack of waterways to the interior, kept the colonists clustered near the seaboard until well after the Revolution.

It was a prolific wilderness, and out of its abundance the dwellers in New York all but sustained themselves for 200 years. But for the goodly heritage of the forests, the hilly, stony lands of the Atlantic states might long have remained as barren as the subarctic





WILD ANIMALS OF NEW NETHERLAND WHICH NEVER EXISTED

Arnoldus Montanus, 1671







## THE FOREST

tundras. So important were forest resources in the hands of the spoilers who settled them that they must be briefly enumerated.

Human labor drew tribute from the forests in a dozen or more sustaining industries. From first to last the forests have furnished logs, timbers, lumber, fuel, fencing, tanners' bark, charcoal, ashes for potash, ashes for fertilizers, furs, animals and birds for meat, sugar, vinegar, and, in later years, railroad ties, telephone poles, pulp for paper, and fuel for boats and trains and to produce power. From the first settlements down to the present time, these forest products have supplemented agriculture and stimulated settlements in the wilderness.

The forests supplied several by-products not directly dependent on human labor for production. It was a hunter's paradise. Everywhere the wilderness teemed with life and became at once a battle ground to supply the settler's commissariat and to hold in check wild animals destructive to man and domestic beasts. Deer, bear, rabbits, squirrels, wild turkeys, and grouse abounded in the woodlands of the whole State when settlers first began their clearings. The rivers which criss-cross the State and the lakes and ponds which dot every part of it, shaded by a hundred or more species of trees and shrubs, were natural fish hatcheries. The earliest settlers lived almost in the hunting and fishing stage of civilization. A rifle was as necessary as an axe. One must read deeply in early records to realize what a world of wild life has been civilized out of existence in the establishment of agriculture.

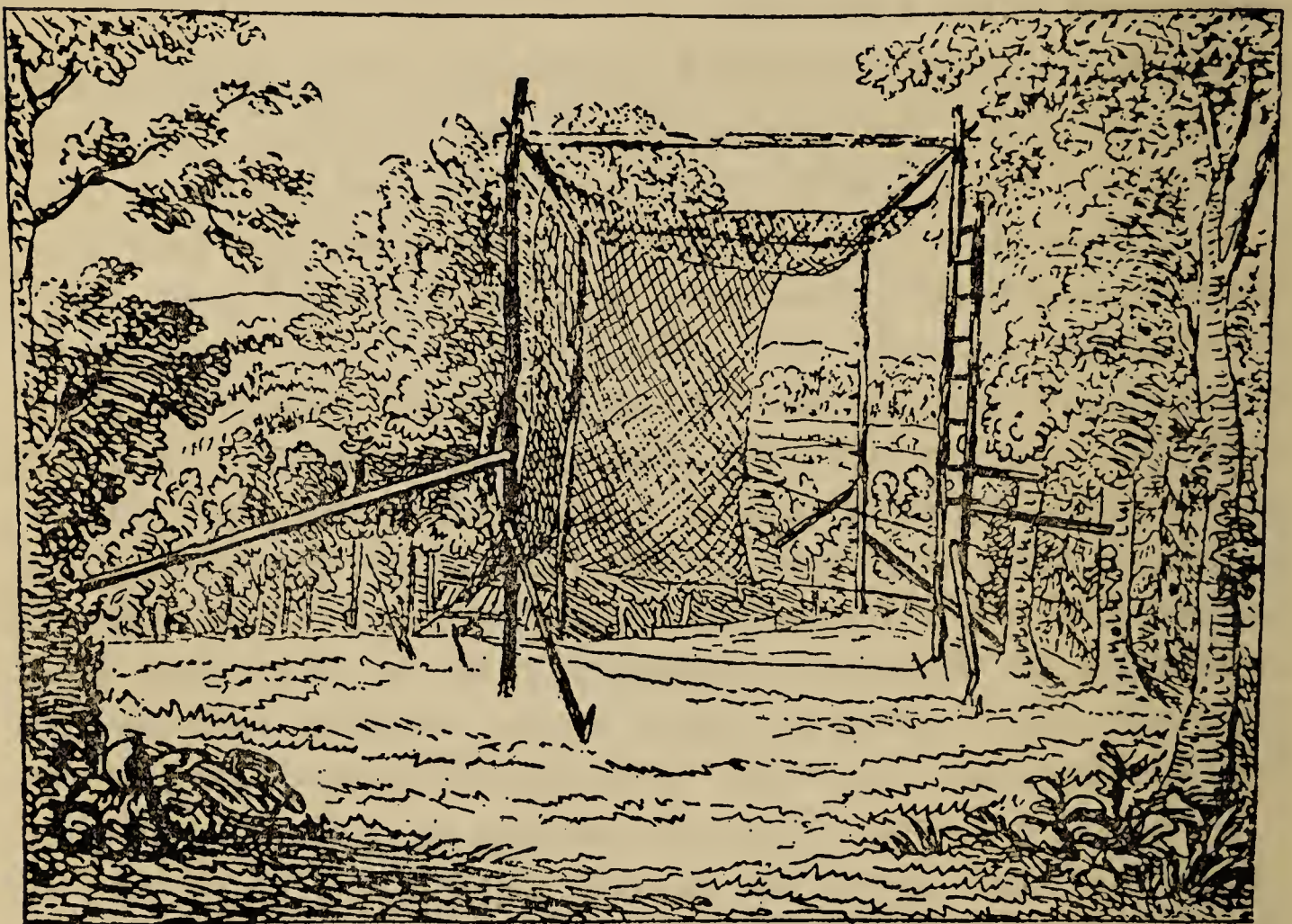
In occasional years flocks of millions of passenger pigeons visited the State, most often in early spring in search of food in the forest—acorns, beechnuts, and buds and leaves that had withstood the winter. At such times, skies, forests, fields were filled with pigeons. New York became a vast pigeonry. Early settlers were usually near starvation when winter was driven away and the miracle of pigeons was to them as manna to the Israelites. They gorged themselves on the dark lean meat of the mature birds and later on the butter-balls into which the squabs developed. A pigeon year and a pigeon roost were godsend to the parts of the State so favored. A clergyman in the early days in the Genesee country thanked the Almighty for pigeons, "our daily bread".



## A HISTORY OF AGRICULTURE

In *Chainbearer*, most admirable of all the novels that have been written of the early settlements in America following the Revolution, James Fenimore Cooper gives an account of a pigeon roost in the Champlain Valley which it would be hard to excel as a description of the abundance of life in primitive American forests. Cooper's description of several pages begins with this paragraph:

"I scarce know how to describe that remarkable scene. As we drew near to the summit of the hill, pigeons began to be seen fluttering among the branches over our heads, as individuals are



PIGEON NET

*Taken from an old etching*

met along the roads that lead into the suburbs of a large town. We had probably seen a thousand birds glancing around among the trees, before we came in view of the roost itself. The numbers increased as we drew nearer, and presently the forest was alive with them. The fluttering was incessant, and often startling, as we passed ahead, our march producing a movement in the living crowd that really became confounding. Every tree was literally



## THE FOREST

covered with nests, many having at least a thousand of these frail tenements on their branches, and shaded by the leaves. They often touched each other, a wonderful degree of order prevailing among the hundreds of thousands of families that were here assembled. The place had the odour of a fowl-house, and squabs just fledged sufficiently to trust themselves in short flights, were fluttering around us in all directions, in tens of thousands. To these were to be added the parents of the young race endeavouring to protect them, and guide them in a way to escape harm. Although the birds rose as we approached, and the woods just around us seemed fairly alive with pigeons, our presence produced no general commotion; every one of the feathered throng appearing to be so much occupied with its own concerns, as to take little heed of the visit of a party of strangers, though of a race usually so formidable to their own. The masses moved before us precisely as a crowd of human beings yields to a pressure or a danger on any given point; the vacuum created by its passage filling in its rear, as the water of the ocean flows into the track of the keel."

Fur-bearing animals made trapping profitable and furs, always salable, were often the only means early settlers had of procuring ready cash. Besides, trading in furs was the great industry of the colony while in possession of the Dutch, and for several generations after the English took possession, the Hudson-Mohawk Valley Indian trails gave New York easier access to the interior of the continent than any other of the colonies, Canada alone excepted, and therefore to the fur trade of much of the continent. The Dutch merchants of Manhattan and Albany were past masters in dealing with the Indians and for a century they and their descendants were in control of the American fur trade, as they were also with Canadian commerce via the Champlain waterway. Gradually, the English began to develop "big business" in furs and to compete with their Dutch neighbors. English and Dutch trading goods, including whiskey and gin, were cheaper and better than those supplied by the French, and the traders of New York were very successful competitors with the French for furs even in the Canadian forests.

The forest held other animals than those that provided furs and food. It sheltered a number of troublesome neighbors. Wolves



ranged the whole country to the great detriment of sheep and hogs. Bears were occasionally vicious, and a bear and her cubs could lay waste an acre of corn in a night. Cat-like animals, the lynx, wild-cat, and panther, destroyed some livestock and put the fear of death on the neighborhoods they infested by nightly screechings. A variety of smaller animals, foxes, mink, weasels, and coons, made poultry raising precarious. Almost down to our own day, bounties were offered for the scalps of these animals.

Berries and nuts constituted other forest products by no means insignificant to a people in dire need of vitamins. An enumeration of them sounds appetizing enough. Wild strawberries grew beneath the meadow grasses and sedges in sunny woods. Where holocausts of fire or cataclysm of wind made clearings in the wilderness, raspberries, black and red, and blackberries grew in glorious profusion. Cranberries thrive among the sedges on Long Island and a few up-State bogs. Wild grapes clambered over trees and wild plums made almost impenetrable thickets. Huckleberries flourished in the acid soils in every part of the State. These wild berries were not only fountain-heads of pies and sauces for the early settlers, but in later years they were poured through the sieve of selection by plant breeders whereby domestic varieties were evolved to establish an important fruit industry in New York. Nuts, though much more sustaining foods, were less important than berries, because less in number of species and to be found in comparatively small quantities. The maple, yielding sugar, is to have fuller consideration in another chapter.

The birds and plants that animate forest scenery must have had some effect on the aesthetic and moral sensibilities of those who cleared the land. In a grim and silent wilderness, where men seek livelihood with strenuous labor and no little physical and mental suffering, life would hardly be worth living without aesthetic spice. Nature is never niggardly of beauties in the uncleared lands of a new country and of a surety these made work in the woods a little more pleasant and must have made some impress on the characters of the workers. It may be imagined that sometimes the workers stopped to gaze with child-like wonder at great patches of cypripediums, pink, rose-colored, and yellow, with a freshness and beauty of setting never to be attained in conservatory or

## THE FOREST

garden; or perhaps they came upon other woodland orchids as calopogons, calypsoes, orchises, and pogonias, while a thousand other woodland flowers must now and then have caught their eyes.

The quaint narratives of the early settlers which have come down to us in almost countless numbers say much about the trees and animals that throve in the forests but almost nothing of the succulent vegetation that grew in the fertile forest lands unless such expressions as "the fairest, fruitfulest, and pleasantest of all the world" are meant to include herbs and flowers. But flowers there were in such numbers as to enthrall a botanist, and in such exuberance of growth and such luxurious beauty that they must have brightened the lives of those working day in and day out among them. Besides the flowers there were gardens of ferns, clumps of white, yellow, and red toadstools, and aromatic herbs which helped fill the forest with rich perfume. Of a certainty, it was something in the life of a woodman to admire and wonder over the color and shape of an orchid before he trod it under foot. It cannot but be supposed that the wild life of the forest did something to emancipate the settler from the dark and ugly sides of life which toil and solitude impose.

Mingling with the music of saws as from brass instruments, to which the click-clack of the axe and beetle kept time, with grand clashes in the forest orchestra of falling trees and splintering timber, were the plaintive songs of the veery, the "dey, dey, dey" of the black cap chickadee, the solemn note of the nut hatch, and the discordant chatter of the thieving crested blue jay. The brilliant blues of the jay and bluebirds, the scarlet coronet of the red-headed woodpecker and an occasional scarlet tanager, added bits of color that made the long hours of the working day more cheerful. Above, the great bald-headed eagle, common enough a hundred years ago, sailed in majestic circles, ready to drop, a bolt out of the blue, on its prey. At night the boom of the bittern, the loon's weird cry, the sibilant notes of the nighthawk, and the hoot of the owl filled the forest with voices. The settler must have sometimes felt, though he would not have so admitted, the rude charm of the savage nature in which he dwelt.



## The American Colonies.

*NEW YORK* is bounded betwixt *New England* to the East, and *New Jersey* to the West. On the South it has the Ocean, and on the North the French Colony of *New-France*. The Extent of Sea-coast to the Mainland, on both sides the Mouth of *Hudson's River*, is but small, and runs in about  $41^{\circ}$  of N. Latitude: But *Long* and *Staten Islands*, which lie to the South of this, & are both included in the Province, extend about 150 Miles from East to West. *Hudson's River* runs thro' y<sup>e</sup> whole Mainland from North to South, and receives several others of less Note.

This Province was taken from the Dutch in the Time of *King Charles II.* and granted to *James Duke of York*, who changed y<sup>e</sup> Name of it from *New Holland* to that w<sup>ch</sup> it now bears. The Capital of *New York*, which the Dutch called *New Amsterdam*, is the pleasantest & best built City in all *British America*. It now contains 2000 Houses, most of them of Stone, & has a great Trade in Furs, Logwood, and other Commodities. It stands in y<sup>e</sup> small Island of *Mahanatan*, at the Mouth of the River, and within that of *Staten*. Other Towns of Note in this Province are *Kingston*, *Albany*, & *Schenectady* upon y<sup>e</sup> Continent, & in *Long Isle* among many more is *Jamaica*, *Bedford*, & *Southampton*.

This Isle is exceeding populous, and has in it a fine Plain, called *Salisbury Plain* after that in *England*, which it is said to equal for Pasture.

The Air of *New York* differs not greatly from that of

NEW



## The AMERICAN COLONIES.



*New England, behind which it in a great measure lies:—*

*But y<sup>e</sup> Capital is in a more temperate Climate than Boston.*

*As to the Soil, it is so fertile, that one Bushel of English Wheat is said to have produced a hundred.*

*High up the River most of the Places are fortified, to cover the Country from the French, & the Indians in Alliance w<sup>th</sup> France. These are garisoned by Troops from England, a Party of whom, under Colonel Schuyler, were surpris'd in 1746, put to the Sword, and the Fort of Saratoga demolished.*

*The whole Province, including y<sup>e</sup> Isles, is divided into ten Counties, which are Richmond, Suffolk, Queen's, New-York, Chester, King's, Orange, Dutchess, Ulster, & Albany. Of these, y<sup>e</sup> last five are inhabited chiefly by Dutch at this Day.*

*The greatest Curiosities to be seen in New York are y<sup>e</sup> Natives, that inhabit there, and live in Amity with the English, tho' most of them remain in their Old Idolatry. They are generally handsome well-limb'd People, but spoil their Skins by dying them. Their four Kings were over in England in the Reign of Queen Anne.*

*NEW*

A SHORT DESCRIPTION OF THE AMERICAN COLONIES  
BELONGING TO THE CROWN OF GREAT BRITAIN

By George Bickham. 1747



## A HISTORY OF AGRICULTURE

It was of necessity war to the knife and the knife to the hilt against nature in the new settlement of New York. When man lays low a forest, tills the soil, turns loose domesticated animals, he establishes antagonism between himself and Mother Nature who has reigned unmolested for countless ages, and brings on a conflict with the beasts, birds, insects, a vendetta that persists until one or the other set of forces is master. This conflict contributes almost the sole matter of material importance in the lives of all pioneers in forest regions.

Beyond all question settlements away from the ocean and the Hudson were long delayed by the forest. It took American colonists 200 years to cross the Appalachians as farmers; so forests have acted as barriers to settlements in all parts of the world. The nature of the forest, whether deciduous or evergreen, had an important effect on the distribution of settlers in the State quite aside from the difference in soil on which the two kinds of trees grow. Men wanted hardwood lands where fuel ashes and potash would nearly pay for clearing; they wanted soft wood when tanning and lumbering were profitable industries. The domination of primitive man over the forest was almost wholly prevented by the lack of suitable tools for clearing, and in large measure settlement was delayed in New York because even the axe and the hoe were hard to come by for a century or two after New York was settled.

The forest delayed settlement, too, because in it lived red men who carried on unending war with white men. The blood-thirsty savages murdered by instinct and desire. Until long after the Revolution there were few men in New York who had not seen and talked with a returned captive who had gone through the terrors of being carried off by Indians. There were thousands of men who had taken part in fights with Indians and bore the scars of hand-to-hand combat. There were many before the Revolution who had seen a father, or mother, a sister or brother, scalped; homes burned; cattle driven off; or had been in the massacre at Schenectady or other frontier settlements. Until long after the Revolution, there were those who had been at Cherry Valley on the terrible day of October 11, 1778, when the Indians under Brant and Butler butchered more than 50 people and carried as



## THE FOREST

many more into captivity; or had been spared Brant's scarcely lesser atrocities at Minisink in July of the same year. There were those who had been in schools and seen the schoolmaster scalped and their weaker schoolmates brained. Out of the forest came the Indian in paint and feathers with tomahawk, scalping-knife, and terrifying war whoop. Agriculture could not be established until the forest and the Indian had been subdued, a task that required nearly 200 years in New York west of the Hudson.

There was, no doubt, another side to the story. The whites regarded the Indians as they did the other denizens of the forest—wolves, bears, panthers, and other wild beasts—obstacles to settlement to be subdued and gotten rid of as quickly as possible through warfare or the subtler means of whiskey and rum or carelessness as to smallpox and other diseases. Ours is nearly as bloody a stain on the pages of early history as is the Indian's. The Indian helped the first settlers in only two particulars. He gave his white brother corn and other important crops; and he taught him all he knew of woodcraft.

Indians and wild animals guarding the forest had as their allies tiny winged foes which in the aggregate gave to Death far greater toll than that from savage and beast. The forest swarmed in season with flies, gnats, and mosquitoes. To live in unscreened houses, to work, and sometimes to sleep in the open devoured by these vicious insects for two or three months every summer was torture almost unendurable; but the mosquitoes, unknown by their victims, brought sickness and death in a most insidious form. Scarcely had a settler established a home when he and his family were laid low with malaria, brought by mosquitoes, not by plowed land or stagnant water as the sick in their ignorance thought. "Genesee fever", "chills and fever", "ague", or the "shakes", names for the disguised malaria, unchecked by the rude medical knowledge of the doctor, if such there were, took lives by the score in every new settlement. The vengeance of the mosquito, if not so apparent, was far more effective in casualties than that of the savage.

All old settlers dwell much on the deep snows in the forests. "They say" and then follow prodigious tales of deep snows. There is not complete agreement as to whether forests actually increase

## A HISTORY OF AGRICULTURE

precipitation, but most climatologists believe that forests do increase both the abundance and frequency of rainfall over the areas they cover. In some cases the excess of rainfall for forested over unforested lands is given as 25 per cent or more. There seems, then, some substantiation of the tales of deep snows in the days when the wilderness covered all—at any rate an out-and-out denial cannot be made. Forests are said to facilitate the formation of dew and fog on adjoining open lands but to save open fields from spring frosts and summer hailstorms. The wind movement is, of course, much greater in the open than in the forest.

The remains in every part of the State of thousands of saw-mills, gristmills, tanneries, dams for water power, and abandoned canals, in creeks and rivers in which water hardly flows in dry summers give mute evidence that forests play an important hydrological rôle. That forests are conservers of water for streamflow one need not consult a textbook to verify. Before steam, electricity, and gasoline were made to play a part in agriculture, water power was of paramount importance for a dozen sustaining utilities in a farm community. Until railroads were built, no part of rural New York could prosper without waterways for transportation, and many a river and stream that now ripple over shallows in open lands then flowed brimming full through the forests carrying in boats and scows and on rafts the produce of farms, forests, and miniature factories. Nor were there while the forests stood the great problems of floods and soil erosion that now trouble conservers of the soil. Certainly, forests promoted a steady flow of water in streams to the great benefit of early agriculture.

In a dry spring, after the snow had melted and before green vegetation appeared, there was always danger of forest fires. A settler looking toward the forest, usually as dark and impenetrable as the gloom of a dungeon, would see a roseate glow in the tree-tops which quickly changed from rose to flame. Soon billows of flame accompanied by clouds of suffocating smoke rolled into his clearing, their dull roar breaking the forest stillness. Blackened leaves, burned out sticks, cinders, and red-hot coals floated in the air and dropped to the ground. The fire respected nothing in its path. Animal and bird life sought refuge in swamps. Settlers





THE VIRGIN FOREST IN THE ADIRONDACKS

*Photo by U. S. Forest Service*







## THE FOREST

with foresight were ready for forest fires and spring or fall plowed a strip of land, a rod's width perhaps, around the clearing at the edge of the woods, and perhaps a second line of defense was so provided about his buildings. Even so a forest fire was to be dreaded. Whipped by a wind it might pass the narrow barriers and often did. Sometimes no efforts against such fire sufficed and buildings burned and not infrequently lives were lost. Sometimes men, women, and children must fight half suffocated, clothing on fire, hands and faces scorched, minds on fire as well as bodies. The forest fires about which we now read every summer are but repetitions of similar conflagrations since men began to make homes in the forest, only now they are less frequent, have less to feed upon, are watched by forest guards, and there are more and better means of escape from them than when the country was newer.

The beauty of unaltered nature, the wonder, the mystery, the spice of fear which all men have of a wilderness, cannot be resisted. Men ever have been and ever will be lovers of a forest when fear has been removed. Add the prospect of riches, of cheap or free land, and we have the reasons why men from the populated coast communities of America and civilization-sick Europeans sought the simpler and subtler life of backwoodsmen in New York when the Indian menace had been removed. One has but to read the pages of Bartram, Cooper, Audubon, Thoreau, Parkman, and the records of a thousand obscurer men to realize the extraordinary richness of primitive America and the charm, partly romantic and partly practical, for American pioneers. Even to those who attacked it with axe and flame, forest life was incomparable, preferable to any other life, and who, when they had despoiled one bit of land of its trees and wild life moved on to some new wooded domain, unwilling to live where lands were fenced and roads took them to town. The modern omnipresent urge to camp in the forest, the boy scouts' hikes to the woods, the Izaak Walton movement to preserve wild life, are the spume of our ancestors' primitive impulse to seek the wild. Of the magnificent forests of New York there exist now only a few tiny remnants untouched by automobile roads, not dotted with summer camps and unplastered with the vulgar signs of civilization;

these are feeble reminders of the untamed lands which our ancestors wrested from the Iroquois.

The conquest of the forests of New York was the most dramatic event in the agricultural history of the State. At the close of the Revolution, New York west of the Hudson was a vast unexplored wilderness, hidden in which were an unknown number of lakes, drained with rivers which even the Indian had not fully explored, a region of enormous swamps, a forest domain in which creeping westward were only a few habitations to mark minutely the beginnings of permanent settlements. A half century compassed the transformation of this seemingly uninhabitable wilderness into the richest farming lands the country knew a hundred years ago; saw fashioned rich cities and a thousand prosperous towns and villages; witnessed the building of splendid turnpikes connecting farms and marketplaces; saw the construction of the world's greatest system of canals within the borders of the State; and at the end of the period were begun railroad lines that completed the making of the Empire State. No army in the history of the world has made conquests of so great importance to civilization as did the men who turned the forests of New York into farms during the half century that followed the American Revolution.

Who in youth has not been fascinated with tales of the pampas of temperate South America? Here were great undulating plains, pleasant pasture-lands for cattle and the wild-horse. So fertile was the soil that the growing grass hid horse and rider; moreover, there were navigable rivers flowing through this happy land to furnish transportation. Yet, though the Spaniards made conquest here a full century before Europeans came to our Atlantic forests, the countries of the plains in the southern hemisphere remained semi-barbarian, the rich plains almost uninhabited, useless and negative to diversified agriculture. Meanwhile, the wildernesses of North America were subdued and cities dotted the land. The Patagonian is still a savage. It does not suffice to say that the difference lies in the peoples who made settlements. The sustaining industries provided by a forest, in large part, account for the more rapid development of temperate North America than of the same zone in South America. The



## THE FOREST

forest, difficult though it was to subdue, was a paramount asset to New York agriculture.

Viscount de Chateaubriand, European traveller, visited New York in 1791, and from one of the high points in the Adirondacks, looking over the sea of verdure beneath him said, "This is truly the leafy continent of the world." No doubt as he overlooked New York's vast forests he contrasted it with the barren, stony plains of Asia Minor, once granaries and garden spots, and the treeless steppes of Turkestan from which so many of our agricultural crops have come. Perhaps he called to mind that these exhausted fields and soil-eroded mountains must at one time have been covered with luxuriant forests similar to those that lay before him, and he may have reflected that the curse of sterility lies on a land that has been divested of its benignant forests.

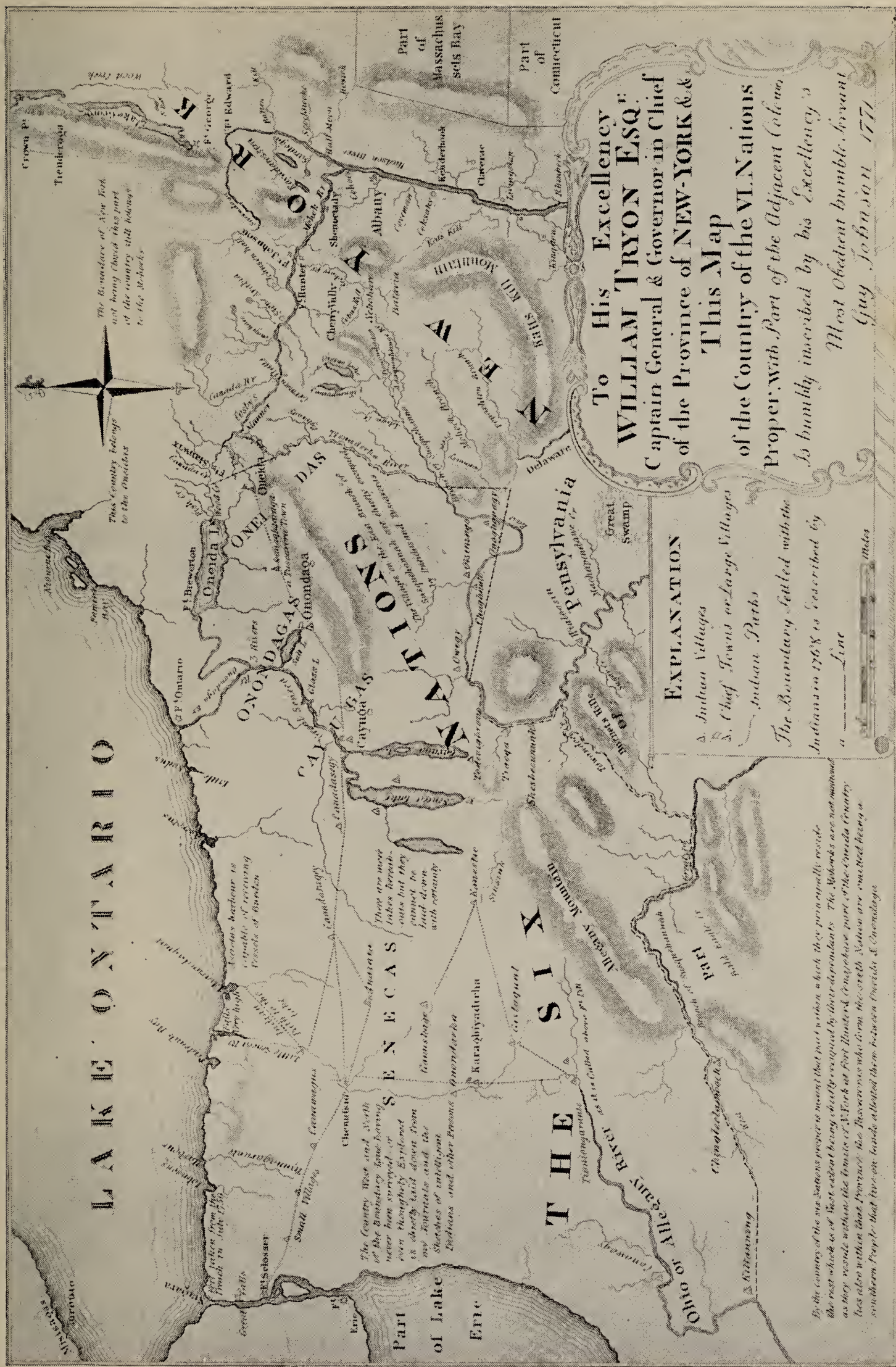
## CHAPTER II

### INDIAN AGRICULTURE

**A**T the time the whites made their first settlements in North America there lived in the region lying between the Hudson on the east and Lake Erie on the west the most redoubtable tribal family of American aborigines. To the French, these Indians were the Iroquois; to the English, the Six Nations. The Six Nations achieved for themselves a higher degree of civilization than any other race of aborigines in the New World except some of the inhabitants of Peru and Mexico. They made earthen pots for culinary purposes; they wove baskets and mats, serviceable and of no little beauty; they spun twine from Indian hemp with which to make nets; they extracted oils from fish and wild sunflower seed; made stone and bone implements; constructed canoes which were masterpieces of art; cured skins; smoked stone pipes; contrived beads and wampum; and they practiced agriculture, rude and slovenly enough, yet far superior to that of any of their savage neighbors. The daily food of one of these Indians depended quite as much on the abundance of his crops as on his skill in the use of the bow.

Probably the agriculture of the Iroquois was a degenerate form from Mexico, whence certainly their main crops—corn, pumpkins, beans, and tobacco—had come. For untold generations this primitive agriculture had been carried on in the forests of New York, as in all of the forests, plains, and deserts of the continent. Whether it was advancing or retrograding when the whites came, cannot be said. Agriculture could never advance far without a beast of burden and the Indian had none, unless it was his squaw, of whom Champlain said “woman is the Indian’s mule.” For that matter civilization seems never to progress without domesticated animals. The Indians of North America, naturally intelligent and vigorous in body, surrounded by a rich mammalian life, had only the dog as a domesticated animal, useful in the chase and for food, but a poor beast of burden.









## INDIAN AGRICULTURE

In the long catalog of useful qualities assigned to dogs by their many admiring friends, that of affording food to their masters is seldom dwelt upon, yet by nearly all primitive peoples the principal use of the dog was to furnish a culinary dish in times of food scarcity. All of the Indian tribes of North America from the Esquimaux to the Aztecs seemed to have possessed dogs of which they made little use in hunting. To guard the camp and furnish reserve food were the purposes they served. Dogs prowled about Iroquois villages in great numbers, waxing fat when the hunting was good and managing to pick up enough to keep alive when the chase failed. In times of famine the hungry villagers ate a portion of the pack. Could any other animal serve so well as provender in a time of need? The dog is the only domesticated animal that will abide with man through the strength of his affections, and so in endless changes of camp and flight and chase the Iroquois had the dog at his heels to save him from starvation if need might be—and that without trouble for his keep.

While the Six Nations and other eastern tribes of Indians had no horse, the Indians of the plains at the time the Atlantic seaboard was settled had herds of horses, descendants of the dozen taken into Mexico by Cortez, which roamed north into Texas and California and the great plains region and degenerated into a small, rangy, fierce, wild animal under feral conditions. Perhaps it is not out of place in a history of agriculture to remind the reader that the horse originated in North America. Paleontologists tell us that 25,000,000 years ago there was a small horse, a foot and a half in height, or thereabouts, with four toes on its fore feet and three toes on its hind feet. In time this dwarf animal developed into the modern horse, but not under American conditions. The dwarf wandered from America into Asia, across Asia into Africa, and there, so the records seem to show, was tamed by the Libyans. From this horse is descended the pure-blooded Arabians famed for their beauty and fleetness. Another branch of the horse family went into France where they were tamed. Modern horses, for most part, came from the French branch. The Arab horse was taken by the Moors to Spain; the Spaniards took him to America, where his ancestors had originated 25,000,000 years before—a trip around the world.

It is pretty well agreed that the five most important invention discoveries by barbarians on the road to civilization were the use of fire, the wheel, writing, the domestication of beasts of burden, and the discovery of the function of seeds. The importance of the two last-named discoveries is usually not given their full importance, but a moment's reflection shows that they are the solid foundations of agriculture and that put in use they freed mankind from a constant and haphazard search for food. Now of these two agricultural invention discoveries, the Iroquois had but one, the planting of seeds. Could they have domesticated some animal or animals, the history of North America would have been very different.

The turkey, associated with Thanksgiving Day established by the Puritans, and the turkey shooting matches which gave entertainment to pioneer settlers in every part of eastern North America, is supposed by many to have been turned over to the whites by the Indians as a domesticated bird. Much as one would like to believe that the lord of barnyard fowls was a gift of the Indians to North American settlers, facts do not sustain such a belief. Turkey breeders say that the domesticated bird came originally from the Indians of Mexico and Peru; thence to Europe about 1530, probably to Turkey where it got its name; later back to America. The wild turkey abounded in nearly every part of North America, but northern and eastern Indians, at least, did not take the trouble to domesticate it, or could not, since a turkey will not follow an owner as a dog does and so succumb to captivity. Ornithologists say that the domesticated turkey is derived from *Meleagris mexicana*, the southern wild turkey, while the northern wild turkey belongs to a distinct species, *M. gallopavo*. Admixtures of the two species were not made until long after the Atlantic states had been settled.

It does not appear that the Indians on Long Island, nor those close to the Hudson, tried their hands at tilling the soil as generally as their western neighbors and they seem to have been much poorer farmers. The Long Island Indian lived chiefly on oysters and fish. One early Dutch account says, "if oysters had legs, Indians would starve." Fish in the Hudson, especially the delectable shad found in prodigious quantities in season, made





EARLIEST PICTURE OF THE TURKEY  
Lemoyne, 1564







## INDIAN AGRICULTURE

fishing an easier means of livelihood than farming. These eastern Indians bartered dried fish and wampum made of shells with their Iroquois neighbors for products of the soil.

French explorers, Jesuit missionaries, and Dutch and English from the earliest comers to the Revolution speak of endless Indian feasts where they were regaled with boiled maize and beans, sometimes seasoned with oil pressed from fish, nuts, or the seeds of sunflowers. Pumpkins and squash in plenty seem always to have been the summer squash. The only fruit cultivated by the Iroquois, if planting the seed can be called cultivation, was the wild black plum, *Prunus nigra*. What were the conditions under which the Indians grew these crops?

The prolific wilderness teemed with waste fertility. Virgin soils are everywhere known to be rich. The Indian had only dull stone axes and fire to clear his bit of land until the trespassing Europeans brought tools of iron. No doubt the Indian did clear some land, but it was easier to change his habitation from time to time to some rich meadow open to the sun. Those who have traveled much in forests, even the primitive wilderness, know that there are more or less frequent sun-lit openings, indentations made by cataclysms of wind and fire. Rarely are there open meadows; more often the denuded land is covered with a brotherhood of succulent herbs of which in New York the great willow-herb, *Epilobium canadensis*, was likely to be dominant. In time the semi-herbaceous bramble fruits choked out their more succulent neighbors; the brambles were generally, in their turn, crowded out by pin cherries or aspen; then, finally, a new forest evolved. In these transitional stages between the old and the new forest the land is comparatively easily cleared and gave opportunity to the Indians to begin farming.

The most important of the Indian crops was corn of two common types, white dent and white flint, of which there were then as now occasional red ears. Sweet corn may have been grown, but it seems not to have been mentioned until the soldiers returning from Sullivan's raid in 1779 brought seed from the Genesee country. The French under De Norville, Governor of Canada, made a punitive expedition into the wilds of western New York and near the site of the present town of Victor

defeated the Indians and burned their village and what they computed to be 1,200,000 bushels of corn. This is probably gross military exaggeration, but there must have been a considerable quantity to inspire the story and to impress the French, for the region was afterward alluded to by them as "the granary of the Iroquois".

Corn was the staple article of Indian food. It first came into use in late summer in the roasting ear stage and later in season as hominy and coarse cornmeal. As charred corn, it was daily fare the year around. White flint was used for hominy which was made by soaking the shelled corn in lye until the hulls could be removed. For meal, either hulled or unhulled corn was pounded in a stone or wooden mortar. The meal was used as plain mush, mixed with meat, dressed with oil, or baked as unleavened bread, "yellow cakes of the Mondamin," as Hiawatha calls it. Charred corn could be preserved for several years. To char, green corn well along in the milky stage was set up on end in a row before a long fire. Roasting proceeded until the moisture was dried up in the kernels. The corn was then shelled and further dried in the sun. So diminished in bulk and weight, the product was easily stored or transported. Cached in earthen pits it was the chief recourse against the evil arrows of famine which so often struck the Indian. Uncooked, cooked, or pounded fine and mixed with maple sugar, the charred corn of the Iroquois was a nutritious and appetizing dish.

With the roasting ear stage of the crop a season of plenty arrived and was made the occasion of general thanksgiving and feasting. The Green Corn Festival was one of six periods of thanksgiving held by the six tribes in the Iroquois family and was in acknowledgment of the gift from the Great Spirit of corn, beans, and squashes, crops which the Indian pleasingly and significantly grouped under the name "Our Life" or "Our Supporters." The Green Corn Festival lasted four days. At the close of each day there was a sumptuous feast of "succotash." The Indian prepared this dish in several ways, but at its best for them it was made by cooking together corn, beans, and squash, to which was added well-chopped fat meat of a dog. Succotash was a sustaining food in all of the early settlements in America, with the





INDIANS PLANTING CORN AND BEANS  
*Lemoyne, 1564*





## INDIAN AGRICULTURE

squash left out and pork substituted for dog meat, and has come down to modern culinary practice as a most wholesome and delectable regalement.

The men who came with Sullivan's army to western New York noted a peculiarity in Indian fields. In some there appeared to be permanent mounds a foot or two in height and two feet in diameter; in others, there were patches of ridged land. They soon found that these uneven surfaces were brought about by the Indian method of planting and tilling corn. The seeds were planted in the center of the hill, from 12 to 18 inches in diameter, and as the corn grew the soil of the hill was hoed and kept loose and friable. Such hills were used season after season, and so eventually made the small mounds the white men found. The ridges came from planting the corn in continuous rows instead of hills. It is not recorded that Indians used fertilizers in either hills or rows, but some Indian with an experimental turn of mind must have found that ashes or the offal of fish or animals put in the hill would increase the yield of his corn.

It is an interesting speculation as to whether agriculture may not have started in the New World. There are a hundred or more types of corn and twice or three times as many varieties. It must have taken from 10,000 to 20,000 years to differentiate them. There are fewer types but more varieties of beans. Corn, beans, pumpkins, and potatoes may have been cultivated in Peru and Mexico before wheat and barley were grown in the Old World which should put the parents of agriculture in the Western Hemisphere. If Old-World culture seeped across the oceans before Columbus, it did not bring either its edible esculents or its animals. All agree that civilization started with agriculture and America developed her own crops and animals out of her own discovery of them at a date that may have been earlier than human culture began in Asia or Africa.

Of beans there is much less to record than of corn. There were several or many varieties all of which belong to *Phaseolus vulgaris*, the kidney bean, usually a climbing plant. The bush bean seems to be a modern offshoot of the climbing or running bean, probably a mutation seized upon by some sharp-eyed white. Like corn, the Indian bean came ancestrally from Mexico or Peru and with corn

was distributed among the Indians from the Atlantic to the Pacific and from Canada to Argentina, but by whom and when can never be known. When meat failed, the bean was the Indian's only nitrogenous food; for of cheese and milk there were none. Beans, the Indian must have observed, would grow in a poorer soil than corn. Usually, the seeds were dropped in the hill with corn and the vines clambered up the cornstalk. Indians had no county agents to tell them that seed or soil should be inoculated to grow legumes, nevertheless they grew beans sufficiently well to make them their chief dependence for a protein food over long periods when game was scarce.

Pumpkins and squashes were grown in corn fields, seeds of the two plants being put in the same hill. Joselyn, in his *New England Rarities*, wrote of New England squashes, and what he says applies as well to this vegetable as grown by Indians in New York. "The squashes," he says, "but more truly Squoterssquah, a kind of melon or rather gourd, for they often degenerate into gourds, some of them are green, some yellow, some longish like a gourd, others round like an apple, all of them pleasant food boyled and buttered and seasoned with spice. But the yellow squash, because like an apple, and about the bigness of a pome-water is the best kind."

The confusion as to just what pumpkins, squashes, and gourds North American Indians cultivated is so great that it would require a chapter, and a long one, to set forth the views of the several botanists who have given the subject study. We may be sure that the Iroquois, at least, grew the field or pie pumpkin; the warty yellow summer crookneck or craneneck; and the patty-pan, summer, scalloped, bush, or cymling squashes as they are variously known. Of winter squashes, the culture by Indians is possible but not certain.

The Iroquois cultivated gourds in great variety, not for food, for which they are of little worth, but to make ornamentals, dishes, spoons, water jugs, mixing bowls, dippers, rattles, masks, parts of ornaments, for a dye, and vessels for use in various tribal and religious ceremonials. The gourds grown by the Indians of New York belong to *Cucurbita Pepo*, a yellow-flowered species with fruits of many shapes, colors, and sizes having hard, durable shells.



## INDIAN AGRICULTURE

Indian agriculture was carried on almost wholly in a corn field. Beans were planted in the hill of corn. Pumpkins, and much more rarely squashes, were planted between the corn hills and their vines like those of the bean used the cornstalk as a support. The triumvirate, corn, beans, and pumpkins, was one of long association for the three had come in the distant past from Mexico or Peru. Relatively unimportant as compared with corn and beans as foods, yet the pumpkin, at least, was planted in almost every patch of Indian corn. For food value a pumpkin is a luxury, and food luxuries belong to a higher standard of living than the Indian possessed. It may be that the pumpkin possesses in high degree some very necessary vitamin or the Indian would not have grown it at all.

The single fruit which the Indians of New York are known to have planted is a small black plum so common in Canada that it is called the "Canada plum", known by botanists as *Prunus nigra*. This is the plum which Jacques Cartier saw in the canoes of Indians in his first voyage up the St. Lawrence in 1534, from which, he says, "the Indians made prunes by soaking the plums in lye and then drying them in the sun." This prune-making plum is found in New York only as an escape from cultivation in the outskirts of Iroquois villages. That the Indians tended the trees is probable for early travelers record that plantations of plums were found about aboriginal villages and that dried plums were in common use in the winter diet of the savages. Here, again, plant breeders have taken a lesson from the Indian and domesticated a wild esculent. About 40 varieties of the Canada plum are under cultivation. Early settlers in New York followed the Indian practice of making prunes from this plum.

There is a suspicion that the Indians may have planted the Kentucky coffee tree, *Gymnocladus canadensis*, since the plant in New York is most commonly found on the shores of Cayuga and Seneca Lakes near the sites of Iroquois villages. Certainly, they used the seed in making a drink, and from this the whites learned the art and gave the name "coffee tree." The seeds were used in rattles.

The all-recording Parkman says that Champlain saw the sunflower among the Indians in 1615. Peter Kalm, the Swedish

naturalist, in his *Travels into North America, Containing Its Natural History, and a Circumstantial Account of Its Plantations and Agriculture in General*, in 1749, saw the common sunflower cultivated in maize fields by the Indians. If the word of these two unimpeachable observers were not sufficient, there is much circumstantial evidence to show that the sunflower was an Indian crop cultivated as were their other food succulents; for there are frequent references in the books of Indian authorities to sunflower oil and to the use of the seeds eaten, uncooked, roasted, and as admixtures to corn and bean soups. The dried seeds were pounded into a cake. Sometimes the dried leaf was used to adulterate or as a substitute for tobacco. The sunflower, *Helianthus annuus*, belongs to the warmer parts of North America and may have come originally from ancient farmers in Mexico.

America, it would seem, is missing a splendid opportunity in not cultivating the sunflower as a field crop. This easily grown, productive esculent is a major crop in Russia, the Balkan countries, and in China, where the seeds are used for food and oil and the leaves for cattle fodder.

The Jerusalem artichoke, *Helianthus tuberosus*, was cultivated by the Indians of this region. Its use is not infrequently mentioned by writers, and since the tuber is as nutritious as that of the potato and is both wholesome and palatable, no doubt the Indians would tend it. The plant grows wild in many parts of New York, having probably originated in the valley of the Mississippi, whence it spread or was carried eastward, so that the indolent Indians need not exert themselves greatly to make plantings when artichokes were wanted for their pottage. It probably was with them as with us an occasional crop, albeit a plant of great potential possibilities for either red men or white.

There is a probability that the Indians in Virginia and the South planted and tended the potato, but there are no records to show that the Iroquois were so happy in their gardening. Why should an intelligent Indian race bring from the southwest corn, beans, and pumpkins and not the potato which originated in the same plant brotherhood? Possibly difficulties in culture or cooking deterred them, but far more likely the transportation and storage of the tubers kept this noble esculent from Indian cultiva-



## INDIAN AGRICULTURE

tion. The potato, as we shall find in another chapter, limped along three centuries after corn in coming to New York as an important field crop. Tobacco, a close botanical relative, despite the economic, hygienic, aesthetic, and even religious objection against which it has had to contend, was grown commonly by the colonists long before the potato was popular.

Morgan, usually a good authority, says the Indians used a wild potato as an article of food but did not cultivate it. The potato, he says, grew spontaneously upon the western reservations, the tubers reaching the size of a hen's egg. It is to be doubted whether any species of the potato would grow wild in New York, and if the Indians had it, it must have been under cultivation. Probably Morgan's wild potato was the ground nut, *Apios tuberosum*, which the Indians used and which is not uncommon in western New York.

Tobacco made an early conquest of North American Indians. Pipes are found in nearly all early Indian remains. When the tomahawk was buried, the war-paint removed, universally the peace-pipe was lighted. With some tribes, tobacco was a sacred plant. The Indian obtained the comforts of nicotine only from a pipe. The quid, snuff, cigar, cigarette, cheroot, stogie, hookah, and hubblebubble are for most part refinements of later foreign users of the weed. Smoking was universal from the Arctic to Patagonia when Columbus made his first visit, from which we may infer that there were no disputants against its use, that pursuance of Lady Nicotine had full sway unrestricted by taxation or legislative restrictions, and that no red-skinned reformers lectured against tobacco. Happy days for the lover of a pipe!



ABORIGINE SMOKING  
After De Bry in *Brevis Narratio*

# A HISTORY OF AGRICULTURE

TABLE I. — INDIAN FOOD AND INDUSTRIAL PLANTS — Continued.

COMMON NAME	SCIENTIFIC NAME	PART USED	PURPOSE
NATIVE PLANTS USED BUT APPARENTLY NOT CULTIVATED			
Dogwood, silky.....	<i>Cornus Amomum</i> .....	Bark and leaves..	Smoking
Dogwood, flowering.	<i>Cornus florida</i> .....	Roots.....	Dye
Dogwood, red-osier..	<i>Cornus stolonifera</i> ....	Leaves.....	Smoking
Elderberry.....	<i>Sambucus canadensis</i> ...	Fruits.....	Food
Elm, American.....	<i>Ulmus americana</i> .....	Bark.....	Withes, nets, etc.
Elm, slippery.....	<i>Ulmus fulva</i> .....	Cambium layer..	Food
Golden-club.....	<i>Orontium aquaticum</i> ...	Rootstocks.....	Food
Gooseberries.....	<i>Grossularia hirtella</i> and other spp.....	Fruits.....	Food
Grapes.....	<i>Vitis labrusca</i> and other spp.....	Fruits.....	Food
Grasses.....	<i>Hierochloë odorata</i> and others.....	Stems.....	Baskets, mats, etc.
Hackberry.....	<i>Celtis occidentalis</i> .....	Fruits.....	Food
Hawthorns.....	<i>Crataegus tomentosa</i> and other spp.....	Fruits.....	Food
Hazelnuts.....	<i>Corylus americana</i> and <i>C. cornuta</i> .....	Nuts.....	Food
Hickories.....	<i>Carya ovata</i> and <i>C. laci- niosa</i> .....	Nuts.....	Food
Huckleberries.....	<i>Gaylussacia baccata</i> and other spp.....	Fruits.....	Food
Indian cucumber....	<i>Medeola virginiana</i> .....	Rootstocks.....	Food
Indian hemp.....	<i>Apocynum cannabinum</i> .	Stems.....	Fiber
Indian tobacco.....	<i>Lobelia inflata</i> .....	Leaves and stems	Smoking
Indian turnip.....	<i>Arisaema triphyllum</i> ...	Rootstocks.....	Food
June- or service-ber- ries,.....	<i>Amelanchier canadensis</i> and other spp.....	Fruits.....	Food
Labrador tea.....	<i>Ledum groenlandicum</i> ..	Leaves.....	Beverage
Maple, sugar.....	<i>Acer saccharum</i> .....	Sap.....	Sugar and syrup
Milkweed, swamp...	<i>Asclepias incarnata</i> ....	Stems.....	Fiber
Mulberry, red.....	<i>Morus rubra</i> .....	Fruits.....	Food
New Jersey tea....	<i>Ceanothus americanus</i> ..	Leaves.....	Beverage
Oaks.....	<i>Quercus alba</i> and other spp.....	Acorns.....	Food
Partridge-berry....	<i>Mitchella repens</i> .....	Fruits.....	Food
Plum, wild.....	<i>Prunus americana</i> and other spp.....	Fruits.....	Food
Pokeweed.....	<i>Phytolacca americana</i> ...	Fruits.....	Dye
Puccoon, hoary.....	<i>Lithospermum canescens</i>	Roots.....	Dye



# INDIAN AGRICULTURE

TABLE I. — INDIAN FOOD AND INDUSTRIAL PLANTS — *Concluded.*

COMMON NAME	SCIENTIFIC NAME	PART USED	PURPOSE
NATIVE PLANTS USED BUT APPARENTLY NOT CULTIVATED			
Puccoon, yellow. . . .	<i>Hydrastis canadensis</i> . . .	Roots. . . . .	Dye
Raspberry, black. . . .	<i>Rubus occidentalis</i> . . . .	Fruits. . . . .	Food
Raspberry, red. . . .	<i>Rubus idaeus</i> varieties..	Fruits. . . . .	Food
Sassafras. . . . .	<i>Sassafras variifolium</i> . . .	Leaves. . . . .	Beverage
Spicebush. . . . .	<i>Benzoin aestivale</i> . . . . .	Leaves. . . . .	Beverage
Squirrel-corn. . . . .	<i>Dicentra canadensis</i> . . . .	Tubers. . . . .	Food
Strawberries. . . . .	<i>Fragaria americana</i> and <i>F. virginiana</i> . . . . .	Fruits. . . . .	Food
Strawberry blite. . . .	<i>Chenopodium capitatum</i>	Calyces. . . . .	Dye
Sumach. . . . .	<i>Rhus glabra</i> and <i>R.</i> <i>typhina</i> . . . . .	Fruits. . . . .	Beverage
Sweet-flag. . . . .	<i>Acorus Calamus</i> . . . . .	Rootstocks. . . .	Food
Thimbleberry. . . . .	<i>Rubus odoratus</i> . . . . .	Fruits. . . . .	Food
Walnut, black. . . . .	<i>Juglans nigra</i> . . . . .	Nuts. . . . .	Food
Wild indigo. . . . .	<i>Baptisia tinctoria</i> . . . . .	Stems and leaves.	Dye
Wild rice. . . . .	<i>Zizania aquatica</i> . . . . .	Seeds. . . . .	Food
Wintergreen. . . . .	<i>Gaultheria procumbens</i> .	Leaves. . . . .	Beverage

The Indian, having no livestock, had no need of a barn, but he did have corn cribs and underground storage places for grains and tubers. The corn crib in which corn is dried by air circulation is said to be an Indian device adopted by the whites. Corn, beans, and many kinds of berries and fruits were dried for winter use. Surplus meat was dried, smoked, or frozen for preservation and, cut fine, was mixed with berries or other vegetable foods, together with deer tallow or bear grease, to form pemmican. Nuts, tubers, beans, charred corn, and grain seeds were stored in covered pits dug in dry situations.

Teas were made out of leaves, berries, and a great many herbs, but the Iroquois had no "tongue-running, smile-soothing, heart-opening, wink-tippling drink" such as tea or coffee, although had he but discovered it, or had he had more convenient means of preparing it, the cassine, yaupon, or swamp holly, *Ilex cassine*, related to the maté of Argentina, much used as a tea, contains the same stimulating alkaloid found in common tea and grows rather plentifully in western New York. They did use cassine very strong under the name "black drink" to produce a nervous dis-

order in ceremonials, only men being permitted to drink the tea. The Indians had no fermented or distilled liquor excepting a weak beer from fermented maple sap from which they also obtained vinegar. There are no accounts of their making wine from wild grapes or berries.

In clearing land, trees were girdled with stone implements, and after the trunk was dead and dry, fire brought the timber to the ground to be burned. This process was not so slow as it might seem. An industrious squaw burned off as many dry, girdled trees in a day as a white man with an axe could cut in two days and did a better job because often the stumps were burned out. Cleared ground was worked over with wooden mattocks, spades, and hoes. Clam shells and flints were sometimes used in making hoes. The squaw did the planting, sitting down to the work and using a stone implement to dig the holes in which she placed three or four grains of corn and two or three beans. The rows were three feet apart, or thereabouts. Between the hills pumpkins, squash, and sunflowers were planted. Weeds were kept down by women and children. They seem to have done their work well for Wood says that the Indians surpassed the English in the care of their fields, not suffering a weed to "advance his audacious head above their infant corn, or an undermining worm to spoil his spurnes." In doing their work, he says they had a "loving, sociable, speedy way to dispatch it. All the neighbors, men and women, fortie, fiftie, &c., joine and come in to helpe freely."

American agriculture owes to the Indians not only the gift of corn, but much about the care of the corn field—"to cull out the finest seede, to observe the fittest season, to keep distance for holes and fit measures for hills, to worme it, and weed it; to prune it and dress it as occasion shall require." From the Indian, the whites learned to interplant with pumpkins and beans; to hoe and hill and keep down weeds; the scarecrow to keep away birds is an Indian device; the slatted crib set upon posts to permit air circulation is an Indian invention; and the Indian's husking peg is still in use by the whites. Succotash and cornmeal mush are Indian dishes; of corn bread and popcorn one cannot be certain. To be sure, the Indian did not make moonshine and bourbon,





INDIANS BOILING MAPLE SUGAR

*Lafitau, 1724*







## INDIAN AGRICULTURE

although after a generation or two with the whites he did learn to make beer out of corn.

If making maple sugar can be called an agricultural industry, the Iroquois were skilled in this field of farm practice. According to their traditions, they had made maple sugar from time immemorial. A brief description of the art as carried on by the savages of Canada "longer than any now living among them can remember" was published by the Royal Society of London in 1685.

The Rev. Samuel Hopkins, of Springfield, Massachusetts, published in 1753 a description of the method used by the Indians in making sugar, in which he says:

"The Indians make their Sugar of the Sap of Maple Trees. They extract the Sap by cutting the Tree on one Side in such a Form as that the Sap will naturally gather into a small Channel at the Bottom of the Hole cut; where they fix into the Tree a small Chip of six or eight Inches long which carries the Sap off from the tree, into a vessel set to receive it. Thus they tap a Number of Trees; and, when the Vessels are full, they gather the Sap and boil it to such a Degree of Consistence as to make Sugar. After it is boiled, they take it off the Fire, and stir it until it is cold, which is their way of graining it."

So, we may imagine, the Indians of New York made maple sugar; since nowhere on earth are there better maples than in parts of New York, it is probable that sugar making was a foremost agricultural industry in the Indian lands of the State.

Indian agriculture was not quite wholly sustenance agriculture, as one might suspect. There was some commerce in Indian farm crops. The Indians in western New York exchanged corn and beans with a tribe of Hurons in Ontario for tobacco, a tribe who grew this product so well that they were called "the tobacco growers." The Iroquois bartered with the Atlantic coast tribes for wampum made from shells and for dried clams and oysters of which they were inordinately fond. The makers of arrow heads were the only big business industrialists. From the huge piles of chips at flint quarries, it is apparent that the making of arrows

## A HISTORY OF AGRICULTURE

was an industry of some magnitude and there must have been an exchange of farm crops for arrow heads.

When the whites supplied rifles, the arrow head industry was doomed—the first American industry to be driven to the wall by a superior product. The readjustment was not painful as there were no stock brokers, no machinery, no “Flint Chipper’s Union,” and no resulting starvation from workers being driven out of an occupation in which they were skilled laborers.

There were fewer pests to trouble the Indian farmer than his white successors contend with, most of the insects and diseases that prey on farm crops being exotic and not native. Yet Indian crops had their parasites. When these came, whether insects or diseases, the Indian thought he had excited the anger of some evil spirit, or that an enemy had brought trouble on him. He had neither preventative nor remedy. In his time of worry he betook himself to the medicine man, who drew from his bag of curious oddments the proper contrivances of magic to be used with a special incantation for the particular ill of corn or beans and made an attempt to exorcise insect or disease.

The night-loving cutworm was the most troublesome pest in Indian agriculture. This stealthy scourge turns tail to no herbageous plant and in the morning the squaws might find corn, beans, or squashes laid low that the night before rejoiced in full vigor. Early settlers report that the sovereign Indian remedy for the cutworm was to ask the squaw to strip and beneath the full moon, in whose light the worm was supposed to work, to trail the garments of the day once, twice, thrice, over the boundaries of the garden patch. Longfellow describes the practice in *Hiawatha*:

“In the night, when all is silence,  
In the night, when all is darkness,  
When the Spirit of Sleep, Nepahwin,  
Shuts the doors of all the wigwams,  
So that not an ear can hear you,  
So that not an eye can see you,  
Rise up from your bed in silence,  
Lay aside your garments wholly,  
Walk around the fields you planted,  
Round the borders of the corn-fields,



## INDIAN AGRICULTURE

Covered by your tresses only,  
Robed with darkness as a garment.  
Thus the fields shall be more fruitful,  
And the passing of your footsteps  
Draw a magic circle round them,  
So that neither blight nor mildew,  
Neither burrowing worm nor insect,  
Shall pass o'er the magic circle,  
Not the dragon-fly, Kno-ne-she,  
Nor the spider, Subbekashe,  
Nor the grasshopper, Pah-puk-keena,  
Nor the mighty caterpillar,  
Way-muk-kwana, with the bear-skin,  
King of all the caterpillars!"

In "Notes" to Hiawatha, Longfellow adds: "A singular proof of this belief, in both sexes, of the mysterious influence of the steps of a woman on the vegetable and insect creation, is found in an ancient custom, which was related to me, respecting corn-planting. It was the practice of the hunter's wife, when the field of corn had been planted, to choose the first dark or overclouded evening to perform a secret circuit, *sans habilement*, around the field. For this purpose she slipped out of the lodge in the evening, unobserved, to some obscure nook, where she completely disrobed. Then, taking her matchecota, or principal garment, in one hand, she dragged it around the field. This was thought to insure a prolific crop, and to prevent the assaults of insects and worms upon the grain. It was supposed they could not creep over the charmed line."

Probably the Indian custom of which Longfellow makes so much originated in ancient Rome, for, curiously enough, this was a preventive or remedy of the Romans. Pliny says in Book XVII, Chapter 47: "Another method, too, of preventing caterpillars, is to make a woman . . . . ., go around each tree, barefooted and ungirth." Pliny adds in a footnote: "An absurd notion very similar to some connected with the same subject which have prevailed even in recent times." Is this a coincidence, or did the Jesuit priests bring the recipe from the Romans to the Indians?

## A HISTORY OF AGRICULTURE

Fortifications, burial places, pottery, and stone and copper implements in nearly every part of the State establish the fact that New York was inhabited by a people antedating the Indians to whom the name "Mound Builders" has been given. Whether they were a race distinct or should be included under the term "American Indians" is still a matter of dispute. It would appear, however, that the mound builders had a distinct culture of their own and the implements that have come down to us from them imply an agriculture in New York surpassing that of the Iroquois. Did the mound builders rock the cradle of American agriculture? With our present knowledge it is idle to speculate.

The utilization of the gifts of earth might have been much greater had the Indian possessed a flare for plant breeding. Perhaps a hundred species of North American fruits and vegetables have been brought under cultivation by plant breeders in the last century, and of them the poor Indian knew a scant half dozen. Earth's gifts would have been greater, too, had the Indian been a less slovenly farmer. Horse-husbandry he could not have had, lacking the horse; hoe-husbandry he could have had but there was no "Man with the Hoe." It was a woman with the hoe—Hiawatha has sung her praises—but she used her implement only to plant, never to till!

"All around the happy village  
    Stood the maize-fields, green and shining,  
Waved the green plumes of Mondamin,  
    Waved his soft and sunny tresses,  
Filling all the land with plenty.  
    'Twas the women who in Spring-time  
Planted the broad fields and fruitful,  
    Buried in the earth Mondamin;  
    'Twas the women who in Autumn  
Stripped the garments from Mondamin,  
Even as Hiawatha taught them."

The Iroquois was one of the least of the world's farmers, but the Jesuit priests called the Genesee country "the Indian granary." Western New York, it seems, had a good reputation for its agriculture before any white had made settlement, and to a cer-



## INDIAN AGRICULTURE

tainty Indian agriculture—corn, beans, pumpkins, squashes—kept New York agriculture alive in its first century of existence, helped amazingly in its sustenance down to the present time, and enriched it with several agricultural treasures and some valuable farm practices. Remnants of Indian agriculture are still to be found, as practiced three centuries ago, in the six Indian reservations in New York State on which live 5,500 descendants of the Six Nations.

## CHAPTER III

### LAND

**T**HE social and economic life of rural New York was profoundly affected by the land policies of the Colony and State. For two centuries much of the land of the commonwealth was the property of the government or its Indian wards. A very large part of the farming lands of New York passed, first, from the Indians to the government, then, from the Colony or State in grants or purchases in large blocks to land speculators, and thence into the hands of the settlers who cleared away the forest and developed tillable farms. The relations between the several great land speculating corporations, the many private owners of large tracts of land, and the settlers who bought or rented from these land brokers were the cause of strife and petty warfare that made troublesome times for several generations of debtors and creditors and on more than one occasion threatened to wreck the ship of state.

The very liberal federal homestead laws which so greatly aided in the settlement of the Mississippi Valley and the West were not formulated until the middle of the nineteenth century. A homestead law predicated on the democratic theory that the labor of preparing wild lands for the plow was a contribution to the country's welfare and therefore should be rewarded by a gift of the land to the settler seems to have entered no man's head until after the Revolution and it took from then until just before the Civil War to formulate a suitable law to ripen the idea. When New York became a state it regarded land as a source of revenue, and the wealthy men and politicians of the time were encouraged to speculate in the lucrative field of purchasing for resale vast tracts of wild lands in the public domain. An amazing fever now attacked the whole country to which statesmen, army officers, ministers, and merchants of highest standing, in common with financiers and out-and-out adventurers, succumbed. In the long



roster of land buyers for speculation in the two or three decades after the Revolution are to be found the names of nearly all of the prominent men of the country.

Land surveyors were in demand in every part of the State where settlements were being made, and the supply was neither adequate nor the men competent. A good many of the surveyors were dishonest as well as incompetent. James Fenimore Cooper's *Chainbearer*, with the scene laid in the Champlain Valley, just north of where the battle of Saratoga was fought, gives a very good picture of the troubles of land owners and surveyors. Disagreement as to lines run, as Cooper depicts in his novel, led to quarrels, lawsuits, kidnapping, and to murder. Mrs. Tinkum, the wife of a squatter on the princely domain of Ravensnest, owned by Major Littlepage, gave to Littlepage her opinion of a surveyor and his work, speaking of the worthy Chainbearer, hero of the story, as follows:

"As for the Chainbearer, the simple truth is this. Tinkum hired him to run a line between some betterments we had bought, and some that had been bought by a neighbour of our'n. This was long afore the war, and when titles were scarcer than they're gettin' to be now; some of the landlords living across the water. Well, what do you think the old fellow did, major? He first asked for our deeds, and we showed them to him; as good and lawful warrantees as was ever printed, and filled up by a 'squire. He then set to work, all by himself, jobbing the whull survey, as it might be, and a prettier line was never run, as far as he went, which was about half-way. I thought it would make etarnel peace atween us and our neighbour, for it had been etarnel war afore that, for three whull years; sometimes with clubs and sometimes with axes, and once with scythes. But, somehow—I never know'd how—but somehow, old Andries found out that the man who deeded to us had no deed to himself, or no mortal right to the land, any more than that sucking pig you see at the door there; when he gi'n right up, refusing to carry out another link, or p'int another needle, he did! Warn't that being cross-grained and wilful! No, there's no dependence to be put on the Chainbearer."

Again, in the *Chainbearer*, Thousandacres, a squatter outlaw, fatally injured in a fight over land, says on his deathbed: "If there

## A HISTORY OF AGRICULTURE

wasn't no chainbearers, there wouldn't be no lines, or metes and bounds, as they call 'em; and where there's no metes and bounds, there can be no right but possession. If 'twasn't for your writin' titles, I shouldn't be lyin' here, breathin' my last."

There was uncertainty as to the boundaries of New York, Massachusetts, and Connecticut which lasted until 1860. Some of the large grants were described as reaching eastward or westward "into the big woods." Corners and lines were often marked by trees and stumps which had a way of disappearing or by streams and rivers which changed their courses. One easy-to-satisfy surveyor denominated a line "about  $\frac{1}{4}$  hour's walk according to my walking."

In 1629, the West India Company to promote agriculture put forth its famous charter of privileges and exemptions. Its terms provided that any member of the company might secure anywhere in New Netherland, except on Manhattan Island, a tract of unoccupied land extending 16 miles along the coast on one side of a navigable river, or 8 miles along the river on both sides "so far into the country as the situation of the occupier will permit." It further provided that the purchaser of the land from the Indians must plant on it a colony of 50 persons within 4 years from the beginning of the undertaking, and that any private persons might, with the approval of the Director-General and Council, take up as much land as he should be able to improve.

The founder of such a colony was styled a "Patroon," and, although the colonists were bound to him only by voluntary contract for specified terms, the relations between them during the continuance of the contract were much the same as those between the Lord of the Manor and his subjects in the old feudal system in Europe. In most of these large grants the Patroons claimed unrestricted rights of trade within the boundaries of their estates. For most part the colonies so established did not thrive, the most noted exception being Rensselaerwyck Manor on both sides of the Hudson with Fort Orange, now Albany, in the center. This, the oldest and most famous of the grants, was made to Killien Van



## LAND

Rensselaer, a native of Amsterdam, Holland, who did not come to the New World, but employed agents to trade with the Indians on the upper Hudson, giving goods in exchange for land of nearly 700 square miles. The Van Rensselaer manor in time became almost an independent province. It was the largest of the patroonships and the only one of those granted by the Dutch which survived after New Netherland became a province in 1664.

The Dutch government during its brief regime in New Netherland made grants of land without formal purchase from the Indian owners, but these were few and small and since nearly all were confiscated by the English they played no great part in the subsequent development of agriculture. Occasionally, the Dutch authorities gave permission to settlers to buy from the Indians in which case the consideration was small. An example was set by Peter Minuit, first Director-General, who, as everyone has read, purchased Manhattan Island with pieces of bright cloth, beads, and other trinkets to the value of about \$24. The township of Huntington, Long Island, derives its name from a hunting reservation granted the Indians in an early purchase from them. The first purchase of land by actual settlers in this township was made in 1653, and was, reputedly, somewhat of a bargain. Six coats, 6 bottles, 6 knives, 6 fathoms of wampum, 30 axes, and 30 needles bought 6 square miles of beautiful country embracing the land between Cold Spring and Northport and extending from the Sound to the Old Colony Road. The purchasers were Richard Houlbrock, Hobart Williams, and Daniel Whitehead of Oyster Bay.

It was the rule of the English to buy title from the Indian. A purchaser in colonial New York was expected to obtain permission from the governor and council to buy. If granted, a treaty was made and an Indian deed obtained after which the surveyor-general made a survey. The notes of the survey were turned over to the attorney-general who prepared a draft of a patent which must be approved by the governor and council. In this way enormous grants were obtained. The accounts of purchase prices are not very specific, but we read between the lines that the ways

of influencing the government for favors were much the same and quite as devious then as now. The huge grants made by the royal governors of New York on Long Island and up the Hudson were probably largely in consideration of support, friendship, family connections, social position, and wealth.

In the treaties with the Indians land was often purchased by the English as with the Dutch for a song or a line of a song. Down to the end of negotiations deceit and chicanery were practiced. An example of English trickery was that of the treaty in the Phelps and Gorham purchase. Mr. Phelps wanted land west of the Genesee River which the Indians did not wish to cede. He, it is alleged, persuaded the Iroquois to give him a "mill yard" west of the river. To the untutored mind of poor Lo, it was a surprise to learn how much land was required for a white man's mill yard. The celebrated Mill Yard Tract was 24 miles long and 12 miles wide, its east boundary the Genesee and its north line Lake Ontario, as Phelps' men surveyed it.

The governors of the American colonies, were, with but few exceptions, entitled to little respect. They were sent to America, as a rule, not because qualified to govern, but as men not wanted at home for one reason or another; or they owed their appointment to solicitation of powerful friends at court. It followed that the colonies were often defrauded by despicable acts of speculation. It was under such governors that the Schuylers, Beekmans, Van Cortlandts, and many others with names as prominent received enormous grants of land. It was out of such gifts that many of the old New York aristocracy came to greatness. Table II lists the most important colonial patents, and gives an idea of how much of the land in New York at the close of the Revolution, and until well along into the nineteenth century, was in the hands of a few persons. Only tracts of more than 10,000 acres are given in the table, and the several grants to Indian tribes for reservations are not listed.

A statement of the condition brought about by these grants was made by the Earl of Bellemont, Governor of the Province, who, writing in 1701, said, "Not less than seven million acres



TABLE II. — IMPORTANT PATENTS IN THE EASTERN PART OF NEW YORK.

NAME	COUNTY	YEAR	EXTENT IN ACRES	PATENTEES
Adaquataugle Patent. . . . .	Otsego. . . . .	1770	26,000	Sir William Johnson and others
Amherst Tracts. . . . .	Hamilton. . . . .	1774	40,000	Sir Jeffery Amherst (2 tracts)
Argyle Patent. . . . .	Washington. . . . .	1764	47,450	Duncan Reid and others
Artillery Patent. . . . .	Washington. . . . .	1764	24,000	Joseph Walton and others
Bayard's Patent. . . . .	Oneida and Herkimer. . . . .	1771	50,000	Wm. & Rob. Bayard and others (Freemasons' Patent)
Bedlington Patent. . . . .	Delaware. . . . .	1770	27,000	John Leake and others
Beekmantown Patent. . . . .	Clinton. . . . .	1769	30,000	William H. Beekman
Belvidere Patent. . . . .	Otsego and Schoharie. . . . .	1769	100,000	George Croghan and others (2 tracts)
Bishop's Patent. . . . .	Hamilton. . . . .	1774	14,000	Wm. Bishop (T. & C. purchase)
Blenheim Patent. . . . .	Schoharie. . . . .	1769	40,000	John Weatherhead and others
Bradshaw's Patent. . . . .	Washington. . . . .	1762	23,000	James Bradshaw
Cambridge Patent. . . . .	Washington. . . . .	1761	31,500	Colden, Smith, Banyar, and others
Catskill Patent. . . . .	Greene. . . . .	1767	35,500	Martin Garretson Van Bergen and others
Cobus Kill Patent. . . . .	Schoharie. . . . .	1770	40,000	Stephen Skinner and others
Corry's Patent. . . . .	Montgomery and Schoharie. . . . .	1737	25,000	Wm. Corry and others
Cosby's Manor. . . . .	Oneida and Herkimer. . . . .	1734	22,000	Joseph Worrell and others
Coxe's Patent. . . . .	Oneida. . . . .	1770	47,000	Daniel Coxe and others (southwest of Mohawk)
Coxe's Patent. . . . .	Oneida. . . . .	1775	29,000	Daniel Coxe and others (east of Susquehanna)
Croghan's Patent. . . . .	Otsego. . . . .	1770	18,000	Geo. Croghan and others (south of Mohawk)
Dartmouth Patent. . . . .	Hamilton. . . . .	1774	18,036	Jeremiah Van Rensselaer
Dean's Patent. . . . .	Clinton. . . . .	1769	30,000	Elkanah Dean

TABLE II. — IMPORTANT PATENTS IN THE EASTERN PART OF NEW YORK — Continued.

NAME	COUNTY	YEAR	EXTENT IN ACRES	PATENTEES
Franklin Township. . . . .	Delaware. . . . .	1770	30,000	Thomas Wharton and others
Gage's Patent. . . . .	Oneida. . . . .	1769	18,000	Thomas Gage
Glen's Purchase. . . . .	Saratoga. . . . .	1770	45,000	John Glen, Jr.
Harper's Patent. . . . .	Delaware. . . . .	1769	22,000	John Harper, Jr.
Harrison's Patent. . . . .	Montgomery. . . . .	1722	12,000	Francis Harrison and others
Hartwick Patent. . . . .	Otsego. . . . .	1761	21,500	Christian John Hartwick
Hasenclever's Patent. . . . .	Herkimer. . . . .	1769	18,000	Peter Hasenclever
Holland Patent. . . . .	Oneida. . . . .	1769	20,000	Lord Henry Holland
Hyde Township. . . . .	Warren. . . . .	1774	40,000	Edward Jessup & C. Hyde
Jerseyfield Patent. . . . .	Herkimer and Fulton. . . . .	1770	94,000	Henry Glen and others
Jessup's Purchase. . . . .	Warren. . . . .	1768	11,650	Ebenezer Jessup and others (2 tracts)
Kingsborough Patent. . . . .	Fulton. . . . .	1753	20,000	Arent Stevens and others
Kingsbury Patent. . . . .	Washington. . . . .	1762	26,000	James Bradshaw and others
Klock's Patent. . . . .	Montgomery. . . . .	1754	16,000	George Klock and others
Kortright Patent. . . . .	Delaware. . . . .	1770	22,000	Lawrence Kortright
Lawyer's Patent. . . . .	Schoharie. . . . .	1768	36,600	Johannes Lawyer and others
Livingston's Patent. . . . .	Herkimer and Mont- gomery. . . . .	1762	20,000	Philip Livingston and others
Lott's Patent. . . . .	Fulton. . . . .	1761	20,000	Abraham Lott, Jr., and others
Lyne's Patent. . . . .	Herkimer. . . . .	1754	20,000	John Lyne and others
McKee's Patent. . . . .	Delaware. . . . .	1770	40,000	Alexander McKee and others
McKee's Patent. . . . .	Delaware. . . . .	1770	18,000	Alexander McKee and others
Middlefield Patent. . . . .	Otsego. . . . .	1761	29,000	Godfrey Miller and others



# LAND

Nettlefield Patent. . . . .	Otsego. . . . .	1770	13,000	Richard Loudon and others
Oblong Patent. . . . .	Westchester, Putnam, and Dutchess. . . . .	1731	50,000	Thomas Hawley and others
Oothoudt's Patent. . . . .	Otsego. . . . .	1741	13,000	Volkert Oothoudt and others
Otsego Patent. . . . .	Otsego. . . . .	1770	69,000	Charles Read and others
Otsego Patent. . . . .	Otsego. . . . .	1769	100,000	Geo. Croghan and 99 others
Pinefield Patent. . . . .	Delaware. . . . .	1775	30,000	John Rapalje and others
Preston Patent. . . . .	Hamilton. . . . .	1770	14,000	Achilles Preston and others
Provincial Patent. . . . .	Orange. . . . .	1764	26,000	William Cockroft and others
Queensbury Patent. . . . .	Warren. . . . .	1762	23,000	Daniel Prindle and others
Royal Grant. . . . .	Herkimer. . . . .	1765	93,000	Sir John Johnson
Sacondaga Patent. . . . .	Fulton and Hamilton. . . . .	1741	28,000	Lendert Gansevoort and others
Salem Patent. . . . .	Washington. . . . .	1764	25,000	Alexander and James Turner and others
Schaghticoke. . . . .	Washington and Rensselaer. . . . .	1761	61,000	Cornelius Van Dyck and others
Schuyler's Patent. . . . .	Herkimer and Oneida. . . . .	1755	43,000	David Schuyler and others
Schuyler's Patent. . . . .	Washington and Rensselaer. . . . .	1737	11,250	Abm. David Schuyler and others
Schuyler's Patent. . . . .	Otsego. . . . .	1755	43,000	David Schuyler and others
Schuyler's Patent. . . . .	Washington. . . . .	1740	12,000	John Schuyler and others
Scott's Patent. . . . .	Schoharie. . . . .	1770	42,500	John Morin Scott and others
Servis's Patent. . . . .	Oneida. . . . .	1769	25,000	Peter Servis and others
Skenesboro' Patent. . . . .	Washington. . . . .	1765	25,000	Philip Skeene and others
Skinner's Patent. . . . .	Schoharie. . . . .	1770	40,000	Stephen Skinner and others
Springfield Patent. . . . .	Otsego. . . . .	1741	17,000	John Groesbeck and others
Staley's Patents. . . . .	Herkimer. . . . .	1755	34,000	Rudolph Staley and others
Stewart's Patent. . . . .	Hamilton. . . . .	1755	24,000	James Stewart and others
Stone Arabia Patent. . . . .	Montgomery and Fulton. . . . .	1723	12,700	John Chr. Garlock and others

TABLE II.—IMPORTANT PATENTS IN THE EASTERN PART OF NEW YORK—Concluded.

NAME	COUNTY	YEAR	EXTENT IN ACRES	PATENTEES
Stone Heap Patent.....	Montgomery and Schoharie.....	1770	15,500	John Bowen and others
Stony Hill Tract.....	Schoharie.....	1768	18,000	Michael Byrne and others
Strasburgh Township.....	Delaware.....	1770	37,000	John Butler and others
Turloch Patent.....	Schoharie.....	1752	18,000	Jacob Borst and others
Upton's Patent.....	Otsego.....	1770	20,000	Clotworthy Upton and others
Van Bergen's Patent.....	Greene.....	1767	35,500	Martin Garretson Van Bergen and others
Van Rensselaer Patent....	Saratoga and Fulton.....	1774	28,964	Jeremiah Van Rensselaer
Walloomsac Patent.....	Washington.....	1739	12,000	Edward Collins and others
Walton's Patent.....	Herkimer.....	1768	12,000	William Walton and others
Walton's Patent.....	Delaware.....	1770	20,000	William Walton and others
Whiteboro Township.....	Delaware.....	1770	38,000	Henry White and others
Williams Patent.....	Montgomery.....	1735	14,000	Charles Williams and others
Young's Patent.....	Otsego and Schoharie....	1752	20,000	Frederick Young
Young's Patent.....	Herkimer.....	1752	14,000	Theobald Young and others



have been granted away in 13 grants, and all of them uninhabited, except Mr. Van Rensselaer's grant which is 24 miles square, and on which the town of Albany stands." Bellemont further declared that Mr. Livingston "has on his great grant of 16 miles long and 24 broad but four or five cottages, as I am told—men live in vassalage under him, and work for him, and are too poor to be farmers, having not the where withal to buy cattle to start a farm." Col. Van Cortlandt "has also on his great grant four or five of these poor families." "Col. Philipse on his manor had about 20 families," and, said the Governor, "I do not hear that Philipse's son, Col. Schuyler, Col. Beekman, or Col. Smith have any tenants on their grants." Further, the Governor accuses the owners of the grants of having "wickedly stripped of their lands many of the settlers."

The most southern on the Hudson of these large grants was that of Frederic Philipse, who obtained from the government and by purchases from the Indians a vast tract of 390 square miles which extended from Yonkers northward to the Croton River and which, in 1692, was made a manor. North of the Philipse tract was the Van Cortlandt Manor, stretching from the Croton River to Anthony's Nose, a grant made in 1697. Still to the north were the Romboudt and Verplank Manors, granted in 1685, extending several miles along the river between Fishkill and Wappinger Creeks, and 16 miles back into the interior. To the east, lay the extensive Beekman Manor, while to the north Robert Livingston occupied a princely domain which made one of his descendants the richest man in the Colony. It was the expectation that the lords of these manors would establish settlements, but immigrants coming to the new world seeking freedom from serfdom in the old world were not keen to become tenants of the manors, fearing that they were but exchanging serfdom from one continent to another. The most important of these manors are named in Table III.

Under an act of 1782, the State reserved a lot of 400 acres in each of the 28 townships of the Military Tract in central New York for the support of the gospel, and two lots of 200 acres for schools. In each of the 20 townships of the Chenango Tract a lot of 250 acres was reserved for the gospel and another of like

# A HISTORY OF AGRICULTURE

TABLE III. — MANORS OF THE COLONIAL PERIOD IN NEW YORK.

NAMES	PATENTEE	DATE	LOCATION AND REMARKS
Bentley . . . . .	Capt. Ch'r Billop . . .	1687	Southwest part of Staten Island
Cassiltown . . . . .	John Palmer . . . . .	1687	Northern part of Staten Island
Cortlandt . . . . .	Col. Stephanus Cortlandt . . . . .	1697	Northern part of Westchester County
Fox Hall . . . . .	Capt. Thos. Chambers . . . . .	1667	Annexed to Kingston March 12, 1787
Gardners Island . . .	Earl of Stirling . . . . .	1639	With full power as an independent town
Livingston . . . . .	Robert Livingston . . .	1668	Columbia County
Morrisania . . . . .	Col. Lewis Morris . . .	1697	Southern point of Westchester County
Pelham . . . . .	John Pell . . . . .	1687	Southeastern border of Westchester County
Philipsburgh . . . . .	Frederick Philipse . . .	1680	Putnam County
Plumme Island . . . .	Samuel Wiles . . . . .	1675	Plum and Gull Islands
Rensselaerwyck . . .	Killian Van Rensselaer . . . . .	1630 to 1637	Confirmed October 17, 1685, May 20, 1704
St. George . . . . .	Col. Wm. Smith . . . . .	1693	In town of Brookhaven, Suffolk County
Scarsdale . . . . .	Caleb Heathcote . . . .	1701	Westchester County

extent for schools. In each of the 10 towns on the St. Lawrence a mile square was granted for the gospel and schools. Besides these grants for schools by the State, the large land proprietors in a number of holdings encouraged settlement by donating land for schools. In a few instances, grants of land were made directly by the Crown, over the heads of the Colonial authorities as it were, of which the Royal Grant to Sir Peter Warren, uncle to Sir William Johnson, on the Mohawk was an example.

As early as 1700 business men and politicians began to acquire the enormous blocks of land set down in Table II and, as the dates show, the practice continued for more than a hundred years. A



## LAND

few more figures must be given to show the enormous size of some of the grants. Schuyler and his associates owned a strip of land along the Mohawk 50 miles in length. The largest grant made was the Macomb Purchase in six northern counties of 3,693,755 acres, patented in 1791–98. Scriba's patent in Oswego and Oneida counties covered 500,000 acres. George Croghan and "99 others" patented a tract of 100,000 acres in Oswego county in 1769. Finally, there was the Massachusetts Purchase of 6,000,000 acres, subdivided as shown in Table IV, ceded by New York to Massachusetts in 1786 and resold by the latter state.

In all of these land patents an enumeration of rights was set forth in almost endless detail. Patentees insisted on the rights granted them and such insistences plagued settlers who purchased or rented land, the courts, and the Legislature for seemingly interminable years. Nor were the landed proprietors without their troubles. Colonial grants were conditioned on payments in money or commodities. Settlers rebelled at payment of purchase money or rents. In all conscience these were small enough, but still they were not always paid and the Colony or State must resell. The quit rents were a source of important revenues to the Colony, and, after the Revolution, to the State to whom they became due. Laws continued to be passed in regulation of these rents until 1824 when an act was passed for the final sale of all lands which had not been released by commutation or remitted by law. Much of the time of New York legislators in early sessions was taken up by discussions and legislation concerning the rent and sale of the agricultural lands of the State which was or had been in the hands of landed proprietors whose policies had been so selfish and short-sighted as to bring them in constant trouble with the settlers.

Without a plentiful supply of labor no owner of these colonial domains could farm them properly and labor there was none. Slavery was permitted in New York until 1827, but a negro is a poor worker in northern forests. Large immigration might have proved profitable had the land owners offered terms to encourage settlement, but English settlers could usually obtain land from the Colony in their own names, and thrifty Germans and close-fisted Scotch could find no inducement to buy or rent. Entail and

TABLE IV.—SUBDIVISIONS OF THE MASSACHUSETTS PURCHASE  
OF ABOUT 6,000,000 ACRES OF LANDS CEDED TO MASSACHUSETTS BY THE STATE OF NEW YORK AT THE HARTFORD  
CONVENTION, DECEMBER 16, 1786.

TRACT	PARTIES	YEAR	ACRES	COUNTIES
Phelps and Gorham.....	Massachusetts to Phelps and Gorham.....	1788	2,600,000	Allegany, Livingston, Monroe, Ontario, Schuyler, Steuben, Wayne, and Yates
Morris Reserve.....	Massachusetts to Robert Morris.	1791	500,000	Allegany
Triangular Tract.....	Morris to LeRoy, Bayard, and McEvers.....	.....	87,000	Monroe
Connecticut Tract.....	Morris to Watson, Cragie, and Greenleaf.....	.....	100,000	Orleans and Genesee
Cragie Tract.....	Morris to Andrew Cragie.....	.....	50,000	Genesee
Ogden Tract.....	Morris to Samuel Ogden.....	.....	50,000	Wyoming
Cottinger Tract.....	Morris to Gerrit Cottinger.....	.....	50,000	Wyoming and Allegany
Forty Thousand Acre Tract	Morris to Wilhelm and Jan Wil-link.....	.....	40,000	Wyoming and Livingston
Sterritt Tract.....	Morris to Samuel Sterritt.....	.....	150,000	Allegany
Church Tract.....	Morris to John B. Church.....	.....	100,000	Allegany
Morris Honorary Creditors' Tract.....	Morris to Creditors.....	.....	58,570	Allegany and Livingston
Holland Co.'s Purchase....	Morris to Agents of Holland Co.	1792-93	3,600,000	Chautauqua, Cattaraugus, Allegany, Wyoming, Erie, Genesee, Orleans, and Niagara
Boston Ten Towns.....	Massachusetts to Settlers.....	1787	230,400	Broome and Tioga

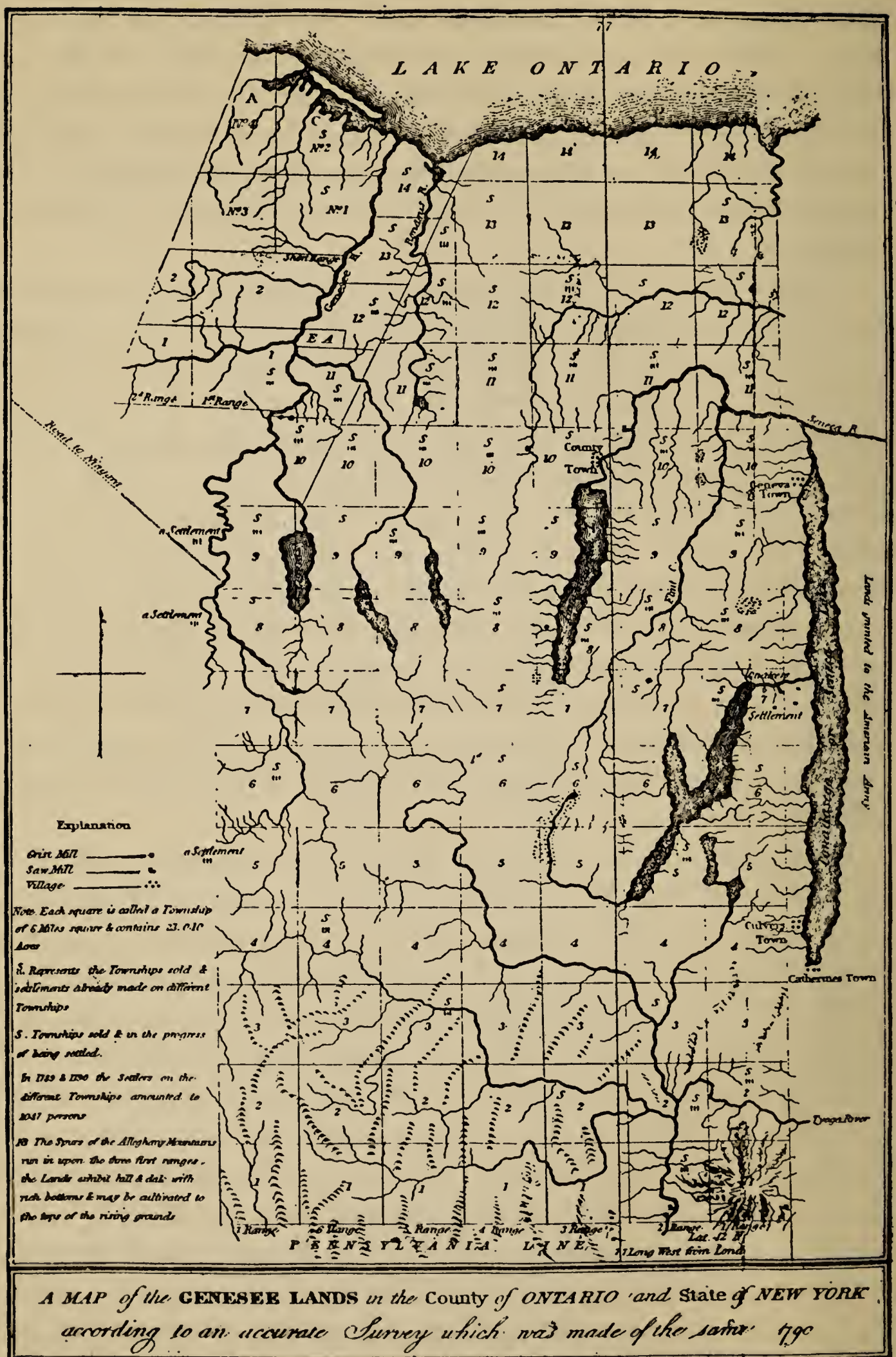


primogeniture, without which the perpetuation of large estates is impossible, were early abolished when the Revolution had been won. Thus, the agricultural development of New York was greatly hindered for more than two centuries after its settlement by land policies, and a region that might have become rich and populous through its farms was kept almost wholly dependent on the fur trade, an industry in which the French greatly excelled the English.

As has been said, there was much corruption in the methods and influences brought to bear in securing patents of these colonial tracts of land, but they stimulated other evils as well. The fees incident to obtaining a patent, the Indian treaties, the surveys of the land, the bickering between rival purchasers, the attorneys' fees, bribery of officials, kept scandal in the air in almost every division of colonial life long after New York had become a state. The canal, railroad, timber, and oil scandals of the last few generations are but a continuation of similar corrupt activities in the colonial government which the Revolution did not wholly bring to a close. Besmirched by bribery and embezzlements as some of our presidents and their cabinets have been since the colonies became the Union, their reputations are lily white in the records of history as compared with those of the colonial public officers.

It must be a constant source of surprise to those interested in the history of New York that the Genesee country with its amazing fertility, a veritable Eden, was not sooner opened to settlers. It was long after settlements in southern colonies had pushed far to the west before western New York saw more than an occasional white trapper or trader. This was in part because the fierce and well-organized Iroquois did not want and would not have white neighbors. Another and a potent reason was that England by proclamation in 1763 forbade colonials to cross the watershed of the mountains to settle. England feared that the savages in the western country, stirred to action by the French, would keep up constant warfare, as indeed they did in Kentucky and Ohio where the proclamation was disobeyed, and she did not want to garrison a long and dangerous frontier. This proclamation, and the pro-

# A HISTORY OF AGRICULTURE





crastination in Indian affairs that had preceded, retarded agriculture in western New York a full half century.

The granting of allotments of land to soldiers in the military and preemption tracts listed in Table II were the first steps toward the settlement of western New York. These were, indeed, the first great movements in the shifting of civilized peoples in which the plow and not the sword was the conqueror. The Iroquois had departed, as they were in fear of a raid by another Sullivan, and the soldier-farmer occupation proved to be a sound and sure one. These preemptions were permitted about the Finger Lakes, in the Genesee country, and in the regions north of the Mohawk. They were the first manifestations in New York of the land hunger which became rampant in every part of the Union immediately following the Revolution. The soldiers had had their wits sharpened

A

DESCRIPTION  
OF THE  
**GENESEE**  
**COUNTRY,**  
In the State of New York.

—TO WHICH IS ADDED—

An APPENDIX, containing  
A Description of the  
**MILITARY LANDS.**

*In which the Situation, Dimensions, civil Divisions, Soil, Produce, Lakes and Rivers, Curiosities. Climate, Navigation, Trade and Manufactures, Population, and other interesting Matters, relative to that Country, are impartially described.*

---

PRINTED FOR THE AUTHOR,  
1804.

TITLE PAGE OF FIRST PRINTED DESCRIPTION  
OF THE GENESEE COUNTRY

## A HISTORY OF AGRICULTURE

in the long war by intimate contact with their fellows and the hard struggles to keep alive, and, whether Yankee or Dutch, proved to be keen traders and grasping buyers. It may be taken as certain that these homesteaders lost no opportunities offered by the misfortune or the necessities of their neighbors to acquire land, so that the inequalities in the size of farms started by large grants in the region became further magnified by the buying and selling of homesteads.

In studying the agricultural history of northern and eastern New York one comes at every turn upon the words "seigneurie," "patroonship," "manor." Mostly the words are used precisely enough but sometimes they are cryptic. The three words typically used are synonymous—French, Dutch, and English. In defining a manor, let us take the English word, note must be made of two elements—economic and political. Always in colonial North America the manor had an estate for a basis, although one gathers that as a political unit it had in some instances wider boundaries. Manorial rights and privileges were granted by the French in several of the northern counties; by the Dutch quite commonly on Long Island and up the Hudson; and in all three of the regions by the English. The words "seigneur" and "patroon" were often loosely applied to land proprietors and good citizens generally; not so with "lord of the manor."

Manorial rights were granted to early settlers of prominence in the colonies to secure economic organizations, protection against the savages, and as a complimentary sop to stimulate immigration. The privileges and exemptions of a manor were usually granted to some substantial man who would agree to plant a colony of this or that number of families on the domain granted him. The lords of these manors were given the right to rule their subjects almost as in the days of feudalism. Even the Dutch in their brief stay in New Netherland found it necessary to curtail the patroons as the English did from year to year down to the Revolution when the rights of entail and primogeniture were removed and patroons and lords of the manor became merely landed proprietors with some special privileges as landlords. Troubles between landlord and tenant culminated in the anti-rent "war" of 1839, and in 1850 the last vestiges of manorial rights





TWO LIVINGSTONS PROMINENT IN AGRICULTURE





## LAND

were removed by the State government. The present manors, as those of Livingston, Pelham, Briarcliff, and others are but survivals in name.

The patroon furnished his settlers with seeds, stock, farming implements, and rented him land at an annual rent payable in grain, pork, money, furs, or other products as the case might warrant. The lord of the manor might, and often did, provide a fort or blockhouse, soldiers, guns, cannon, and a court of justice. Hardly typical, but quite suggestive of the troubles arising from the manorial system, was that of Patroon Killien Van Rensselaer, a commissioner in the Dutch West India Company, who, in 1629, as we have seen, purchased nearly all of the land in what is now Albany and Rensselaer counties and had the rights of a feudal baron conferred on him. He brought over a shipload of emigrants in 1630, established a trading post, built mills, established a church, rented land, and apparently had the regard of his tenants, as had his successors until 1839. Although the rights of a patroon had dwindled to those of a large land-holder, in 1839 organized armed resistance to civil processes in collecting rents was so great that the governor was forced to send State troops to assist the civil authorities. The people finally dispersed and there was no blood shed. A similar collision in Livingston Manor occurred in Columbia county in which the outcome was not so happy.

Livingston Manor was patented by Robert Livingston in 1686 with full feudal privileges. The manor contained 160,240 acres and covered seven townships. Settlement was slow until in 1710 a company of German Palatinates settled at Germantown on a tract of 6,000 acres which had been sold back to the Colony. This settlement stimulated rentals on the Livingston tract. Massachusetts, which under its charter extended westward to the Pacific, laid claim to this land and thus were brought about conflicting claims, bitter contentions, riots, and bloodshed throughout much of the eighteenth century. As late as the Revolution and for several years after, robbery, murder, and tumults were continuous. The contests between New York and Massachusetts finally settled, anti-rent troubles began until in 1844 the Governor was forced to call out seven companies of militia to assist the sheriff in quelling riots which had been the cause of several deaths.

## A HISTORY OF AGRICULTURE



By the Honourable CADWALLADER COLDEN, Esq; His Majesty's Lieutenant Governor, and Commander in Chief of the Province of New-York, and the Territories depending thereon in America.

### A PROCLAMATION.

WHEREAS it appearing that certain Persons residing on or near the Eastern Boundaries of this Province, had entered into a Combination to dispossess *Robert Livingston*, junior, Esq; Proprietor of the *Manor of Livingston*, in the Colony of *New-York*, and the Tenants holding under him, of the Lands comprised within the said *Manor*, under Pretence of Title from the Government of the *Massachusetts-Bay*; as also of an Indian Purchase then lately made by the said Persons, altho' it was most notorious that the said *Manor* had been peaceably held and

#### PROCLAMATION TO ARREST RIOTERS

Another celebrated tract, not noted because of the amount nor quality of the land but quite so by the character of the owner, was Warrensburg in Montgomery county. In 1735, Sir Peter Warren, a British admiral, acquired title to a tract of land in the county named and sent out his nephew, William Johnson, a youth of 21, as his agent. After two removals, Johnson founded Johnstown's Hall where he lived to the end of his eventful life. Young Johnson applied himself assiduously to the study of the Indian's



language and customs and by reason of a most engaging personality and a genius for affairs, whether those of white or red men, gained an ascendancy over the Indians not possessed by any other white person before or since, unless perhaps by William Penn. The events of his life, as everyone knows, are intimately interwoven with the history of colonial New York in Indian and military matters and in no small degree with agriculture, since always and in every way he encouraged farming, especially as a breeder of horses, cattle, and sheep of which more must be said in a later chapter.

Albany and Columbia counties were not alone in anti-rent warfare. In the Hardenburgh patent of 250,000 acres lying between the Delaware and Susquehanna rivers associations were formed which resisted the collection of rents. When the sheriff attempted to collect rents, or sell property for rent, men disguised as Indians prevented collections or sales. An act was passed by the Legislature of 1845 forbidding persons from appearing disguised and armed, but in August of that year a mob of men dressed in Indian garb resisted the sheriff of Delaware county, and after a battle which resulted in one death and several wounded men, a battalion of 300 militia was sent to assist the sheriff, a task that required service in the field for three months.

This seductive theme, although discussed all too briefly to give an adequate account of the anti-rent crusade, has already led too far afield for an agricultural narrative, but one more account must be given to illustrate the contest in western New York and at the same time show how much of the land in that part of the State came into the market for settlement.

As has been stated, Massachusetts, by the terms of her charter, claimed title to a strip of land westward from her northern and southern borders from the Atlantic to the Pacific. The charter of New York, subsequently issued, conflicted with that of Massachusetts. At a convention held in Hartford, December, 1786, commissioners settled the claims of the two states. Massachusetts was to cede to New York the sovereignty of the territory within the limits of New York, and New York gave to Massachusetts ownership of the soil for sale or preemption. The land so disposed of lies westward from the "82nd milestone" of the line between

## A HISTORY OF AGRICULTURE

New York and Pennsylvania, through Seneca Lake to Sodus Bay. The line, known as "Preemption line" was by mistake or intent wrongly surveyed and made trouble in titles for a century after, a story in itself not to be told here. In 1787, Massachusetts sold these lands, amounting to 6,000,000 acres, to Oliver Phelps and Nathaniel Gorham for \$1,000,000, subject to acquisition from the Indians. Phelps and Gorham could obtain title to only the eastern portion of about 2,000,000 of the 6,000,000 acres, the remainder reverted to Massachusetts. The reverted land was resold to Robert Morris in 1791, and he in turn sold the western portion of about 3,500,000 acres in 1793 to the Holland Land Company, reserving the remaining 500,000 acres lying between the Holland Land Purchase and the Phelps and Gorham Tract as the "Morris Reserve." This in turn was sold to Sir William Pulteney and a company of Englishmen and became the Pulteney Estate. Morris, who did so much for his country during the Revolution and for New York in the years that followed, sorry to relate, became so wild in his speculations, that finally his debts landed him in prison. The Holland Purchase comprised about one-seventh of the total area of New York. A strip  $2\frac{1}{2}$  miles wide and more than 200 miles long bordering the New York-Pennsylvania boundary, known as "The Gore," was acquired by a Connecticut company.

The general office of the Holland Land Company was in Philadelphia. The first general agent for the company was Theophile Cazenove who held office until 1799. He was succeeded by Paul Busti for a period of 25 years; and he by John J. Vanderkemp who managed the company's affairs until final settlement in 1841. A land office was located on the present site of Clarence Hollow, Erie county, but was transferred to Batavia in 1802. It is worth noting that the first land office in the United States for the sale of land was established at Canandaigua by Nathaniel Phelps in 1789 and that the Holland Land Company's was the second such office.

Now precisely the anti-rent troubles that annoyed the owners of large blocks of land in eastern New York beset the western owners, although in less degree. There were prolonged controversies between debtor and creditor in the disposition of lands in every one of the large tracts. Settlers purchased land in youthful



## LAND

enthusiasm and in many cases made final payments in old age if at all; they made farms relatively valuable by clearing and tilling only to find that they must pay rent indefinitely. In 1838, the Holland Land Company sold a large tract of land to Trumbull Cary & Company who imposed such conditions on the extension of contracts that the settlers rebelled, demolished the land office at Mayville, and burned the company's records in the highway.

Probably on no one of the patents or other great tracts of land were efforts made to colonize and build towns comparable to those on the Pulteney Estate. The owners indulged in visions of boundless wealth to result from the settlement of their territory. They assumed that the natural avenue from the fertile Genesee country was down the Susquehanna and that somewhere on this river there would be founded a city which would command the trade of all western New York. After a survey, they selected the present site of Bath as the location for the future metropolis. Every inducement was held out to lure settlers and to attract industries. Williamson, manager of the Pulteney Estate, spent immense sums of the company's money in promoting Bath. He built a large hotel, a theater, stores for merchants, and manufacturing plants, and established a race course which for many years attracted sportsmen from all parts of the country. The village grew apace as long as money from the Pulteney Estate poured into it, but when that support was withdrawn it fell into a decline and made even less rapid growth than the nearby towns of Canandaigua and Geneva, also situated on the Pulteney Estate.

The first settlers on farms in any part of New York were poor and to pay a pittance an acre to buy or rent land, even though neighbors helped them to "roll up a house" almost without cost, was a hardship. Always they had to spend some money for seeds, stock, farm tools, and a few culinary necessities. The man, or more precisely the family, went in debt and the mortgage often remained a life-time burden to the first generation. No wonder that the quintessence of life was to make money to pay off the mortgage or to pay the rent and to lay by a little something to secure material comforts in old age. No wonder that bickerings, tumult, riots, outrages, and in a few cases murder met the creditors' demands for money to close out mortgages and pay rent

when men who had cleared the land and built homes, now, after 30, 40, or 50 years, were still in debt, while friends and relatives who had gone to the rich lands of newer states owned farms without financial incumbrance of any kind.

Another source of complexity in land titles and uncertainty in rents under which farmers worked in the early years of statehood was the forfeiture of Tory lands during the Revolution. There were many loyalists, perhaps 10,000, in the State, so many that at the close of the war a committee, the Committee of Forfeiture, was created to sell confiscated lands and to settle the claims of attainted Tories. Of the many complicated cases which came up for settlement, perhaps the Highland Patent of the Philipse family was the most noted.

The Philipse Patent was granted in 1697 to one Philipse, a merchant in New York. It consisted of approximately 240 square miles mostly in Putnam county and a small part of Dutchess county. During the Revolution the Philipses were ardent Tories, two of the women of the family were wives respectively of Beverly Robinson and Roger Morris of the British army. In 1799, the Philipse estate was attainted and sold to tenants for nominal sums. It was subsequently shown in court that one-third of the patent was vested in the children of Roger Morris and was not reached by the bill of attainder. In 1809 John Jacob Astor purchased the interests of the Morris children for \$100,000. The State, to protect the rights of those who had obtained titles from the Commission of Forfeiture in 1827, directed that five suits be prosecuted to judgment. These suits were tried, each resulting in favor of Astor. The State was by court decision forced to pay purchasers of the confiscated Morris lands \$561,500. The settlement, as in many similar cases, affected the lives and fortunes of a great number of farmers.

Of the many great land holdings dating back to the Revolutionary period, but one is now left with any considerable acreage. Two brothers, James and William Wadsworth, were sent by their uncle, Jeremiah Wadsworth, of Durham, Connecticut, in 1790, to develop lands in which he had an interest in the heart of the fertile Genesee country. By a wise and liberal land policy they settled and have continued to hold a large part of the original



estate without serious trouble over rates and rentals. The original owners greatly facilitated the settlement of neighboring lands and the several generations, descendants of James, have served New York agriculture well. Three members of this distinguished family have served as presidents of the New York State Agricultural Society, James S. Wadsworth in 1842, James W. Wadsworth in 1885, and W. A. Wadsworth in 1888.

This account of the early ownership of New York's farming lands, long for the narrative in hand but pitifully short and inadequate to do the subject justice, must not end without further reference to military lands. Table II, page 45, shows that after the Revolution the State made provision in several large tracts for soldiers who had served during the great war. The soldiers drew lots for homesteads in these tracts and in most cases went at once to settle on them, but not infrequently sold their warrants to whomsoever would buy. The largest block of military lands was in central New York and included what now constitutes Cayuga, Cortland, Onondaga, Seneca, and parts of Tompkins, Oswego, and Wayne counties. The soldiers who drew their portion of land in the fertile valleys of these counties were fortunate indeed. Here were the best farming lands upon which the State exacted no rent and asked for payments so small that practically the farms were gifts. The region had one drawback; it was poorly favored with navigable waters and long, rough roads to distant mills and markets proved a heavy burden to its early settlers.

## CHAPTER IV

### THE AGRICULTURAL LEGACY OF THE COLONY

**T**HE history of agriculture in America during the 150 years that followed the first settlement at Jamestown presents a dreary spectacle in all of the colonies. Agriculture scarcely existed. Furs, bartering with the Indians, timbers for the royal navy, forest products, fish, and the coasting trade furnished ready cash to most of the people in the colonies. There was little diversified farming; tobacco in the South; wheat, rye, and corn in the North. Livestock was poor in breeding and illy kept. The bull-plow was a crude wooden implement reinforced with iron. The hoe was a commoner tool than the plow; the hoe-blade was made by the smithy, heavy, ill-formed, and clumsy, the handle a stick cut from the forest with the bark left on. The cradle was not in use until after the Revolution and grain was cut with a sickle; grass with a scythe. At least 80 per cent of the inhabitants of New York before the Revolution were farmers, in the sense of living on a farm, but farmers who were turning their hands to making or doing something in a dozen trades. Parasites of the government, younger sons of the English nobility, and Indians were the only gentlemen of leisure. Wives and daughters took an important part in managing the machinery of farm life. The good American traits of industry and perseverance were germinating in the work of subduing the forests and making a livelihood in the trades and on farms.

When the Dutch Colony of New Netherland became the English Province of New York in 1674, the character of the agriculture began at once to change. The proprietor of the Province, the Duke of York, afterwards James II, appointed Colonel Thomas Dongan as governor, after short trials of two unsuccessful appointees, and the new incumbent gave himself with utmost vigor to his duties which, at first, economically, could only take the direction of establishing commerce, developing the western fur



## AGRICULTURAL LEGACY OF COLONY

trade, and settling new lands. But soon, under Dongan, many large tracts of land were patented, settlers were brought in, and agriculture took a turn for the better—may in fact be said to have begun with the beginning of Dongan's governorship in 1682.

The Province was then, and for many years afterward, predominantly Dutch, but the English and Germans came in in such numbers that by the middle of the next century the language was English for most part with Dutch next and German well represented.

One finds many accounts to make plain that these English, Dutch, and German settlers were not always on neighborly terms. As late as the end of the eighteenth century, Elkanah Watson, a close and critical observer, in his *Journal of Travels* from Albany to Seneca Lake in 1791, has this to say of the three peoples:

“We proceeded on our journey with a miserably covered waggon, and in a constant rain, til night; which brought us to Maj. Schuyler's mills, in Palatine, settled by the descendants of German emigrants, intermixing on all sides with the enterprising sons of the east, between whom mutual prejudices run high. These will gradually subside by intermarriages, and other modes of intercourse. Thus far the German and Dutch farmers, have been, in a manner, totally remiss in cultivating the first rudiments of literature; whereas the descendants of the English, in New England, have cherished it as a primary duty. Hence the characteristics of each people are distinctly variant. When literature shall begin to shed its benign rays over this benighted race,—should our wise law-makers open their arms to embrace, and cherish its general diffusion, as a leading object of legislation—then, and not til then, the Germans, the Dutch, the Yankees, will soon dismiss all local, illiberal prejudices and distinctions.”

It is difficult to write with accuracy about the development of agriculture in colonial New York because the boundaries of the territory cannot be given within wide limits. The only definite boundary was the eastern one of the ocean and the Province of Connecticut. Northward from Connecticut the eastern boundary was disputed by Massachusetts Bay as it was on part of the northern and western lines, while the southern boundary was in

## A HISTORY OF AGRICULTURE

dispute with New Jersey and Pennsylvania. The Province of New York was not the imperial domain of the Empire State, but, very roughly, consisted of Long Island, Staten Island, and a strip of mainland 100 miles wide or thereabouts, running north to Lake Champlain with the Hudson in the center. The Province was divided into 10 counties in 1691, viz., New York, Westchester, Dutchess, Albany, Ulster, Orange, Richmond, Kings, Queens, and Suffolk. All else, and much of this territory, was a blank, agriculturally, at the beginning of the Revolution; not only blank as to settlements, but no white man had seen much of it.

At the beginning of the Revolution, the Province of New York was one of the smallest of the American colonies, both in population and in resources. New York City made a somewhat better showing than the Province, but still was third in size among the large cities. But the city helped agriculture little as urban and rural New York did not work hand in hand. Thus, in 1682, the City of New York passed a Bolting Act which provided that no mill outside the city should grind grain for market. The act was enforced 16 years, and greatly fostered the commerce of the city but was a severe handicap to the settlements up the Hudson. New York City's discrimination against rural New York, together with the constant conflict with the Indians and the French in Canada during the first century and a half of the colonial settlement, tended to drive immigrants to the safer provinces of the new country, such as Delaware, New Jersey, and Pennsylvania. Indeed during all this period there was the constant fear that the French might at any time conquer and hold not only northern parts of the Province but the Hudson Valley as well. This danger was not removed until the fall of Quebec and the Treaty of Paris in 1763, which brought to an end the power of France in the New World.

Only Staten Island, Long Island, and the narrow strip on both sides of the Hudson supported what by a stretch of imagination could be called agriculture. Central and western New York were *terra incognita* into which trappers, traders, and explorers now and then penetrated, bringing back stories of lakes, rivers, vast forests, saline springs, the fierce Iroquois, wolves, game, and fertile lands if only the forests could be subjugated. Even the source of





NEWLY CLEARED LAND IN NEW YORK  
From an etching by Basil Hall, 1829





## AGRICULTURAL LEGACY OF COLONY

the Hudson had not been discovered at the beginning of the Revolution. For most part, navigable waters marked the limit of settlement for of roads there were almost none.

Farmers in New York had developed agriculture to a somewhat higher state than had those in most of the other colonies, although they had no crop that paid nearly so well as the tobacco of the southern colonies. Thrifty Dutch farmers, German emigrants, and communities of French Huguenots, with a sprinkling of English, Irish, and Scotch, had established homesteads from which they could make a living, but there was little from the farms that went abroad and home markets were very restricted. Colonial governors were little interested in agriculture. For most part they were incompetent, with their chief thought to feathering their own nests. It is a sad commentary on the times that most of the colonial governors entered office poor and left rich. The history of the Province from 1664 to the Revolution is a record of a succession of brawls between the governor and the assembly; of efforts to increase the growth of towns; to develop the fur trade; to keep peace with the Indians; to settle differences with other colonies; to encouraging privateers, if not, indeed, piracy. In the official histories of the Province scarcely a word is said about agriculture; one can only get glimpses as to what it was from the books of occasional visitors.

From the beginning much corn was raised, Indian fashion, for hogs and horses and somewhat for meal, but nowhere in the North was corn as much prized for human food as in the South where negro mammies made corn-pones much superior in taste and wholesomeness to Yankee johnny-cake. Wheat was the staple crop in New York, with rye and barley of minor importance. Wheat made flour for bread and for export to the West Indies and the South. Europe in that day raised sufficient grain for her own use, and, besides, grain was too bulky to transport. In culture, harvesting, and threshing of grains, the colonists were not much advanced beyond Biblical times. Indeed, Cato and Varro, Roman farmers a few hundred years before Christ who wrote books on agriculture, would have put the best New York colonial farmer to shame in farm management. Wheat was harvested with



## A HISTORY OF AGRICULTURE

sickles, and the threshing was done by trampling with oxen or with the flail. Ten bushels to the acre was considered a good yield.

Before mills were built, every farmer kept one or two mortars in which corn was pounded. These mortars were usually made in the stump of a hardwood tree by cutting the stump off square and hollowing it out by burning or with axe or adze. To relieve the labor the pounder was hung on a spring pole. The coarse meal was made into mush or corn bread, sometimes unleavened. Or the whole-grained corn was soaked in lye to remove the shell and heart to make Indian hominy, which, raw or cooked, could be kept for weeks or months. The New England Indians called corn so treated *nausamp*, from which came the Yankee name "samp."



EARLY METHOD OF POUNDING CORN

Little or no attention was paid to the breed of farm animals. Until well toward the middle of the nineteenth century, there were no breeders, importers, fanciers, nor none of the agencies that now do so much to keep established breeds at a high level, such as fairs, breed registration associations, gold medal cows, race courses with racing records, illustrious names to be used for generations, or fat stock shows. A horse was a horse, a cow was a cow, and there it ended. Oxen were used almost exclusively for



## AGRICULTURAL LEGACY OF COLONY

all farm purposes, and a pair of oxen was oftener met on the road than a team of horses. As for mules, there were none in America until 1785, when the King of Spain sent George Washington two jacks and two genets. One of the jacks died on the way over, but from the other jack progeny were scattered far and wide in the South where they soon established their worth with the negro as a driver.

Not only were the breeds of cattle poor, but the pasturage provided was scant and insufficient. Cattle commonly had to range the forests and uncultivated clearings for fare. Thus browsing on twigs and weeds they were thin, scrawny, and sickly. Many died from a strange malady, possibly poisoned by laurel, wild-cherry, water-hemlock, or some other weed. Often cows were lost in the woods, were not milked for two or three days, and under such circumstances "dried up" quickly. Poor food, the labor of getting it, and insect pests played such havoc with the animals' vitality that the cows gave but a quart or two of milk a day. Butter made from the cream of cows browsing in the forest was of the poorest quality; and farmers from lack of milk and because of the poorness of the churned product often went without the luxury of butter. Though the making of butter and cheese was generally neglected, a farmer knew that however bad it might be he could obtain a market for it, so scarce and uniformly poor were these products. English farmers, visiting the country, thought the want of grass to be the greatest handicap and privation of the American farm. No root crops were grown for the sustenance of livestock.

Sheep raising, which became a great industry in the nineteenth century in New York, amounted to little in the eighteenth. Wolves and dogs took too great a toll. Besides, of all farm animals, a sheep must be humored most, and under the conditions of a colonial farm, poor sheep-folds, and poor pasturage sheep rather preferred to die than to live. The breeds were poor and could be improved only with difficulty since European countries prohibited the exportation of blooded stock and breeding stock could be obtained only by smuggling or as gifts. The scrawny, badly-shaped, rat-tailed sheep were so degenerated and scant of wool that Parkinson, an English farmer-traveler, said "they look amazingly like goats." It was with the greatest difficulty that

## A HISTORY OF AGRICULTURE

enough wool was obtained for the farmer's hand loom, and most of the woolen clothing for townspeople came at great cost from England.

Scant as was the food, clothing, though possibly not quite so necessary, was even poorer. Homespun woolen or hemp of coarse texture, home-dyed if dyed at all, were the cloths out of which clothes were made. So poverty stricken were the first settlers that their raiment, as wear progressed, were so often spliced and patched that they became veritable "Joseph's coats." A common pastime jest was to guess what this or that person's garment had been made of when it was first worn.

Wolves were common and bred prodigiously in rough, outlying lands. In nearly every county in the State, at one time or another, often over periods of 30 or 40 years, bounties of 5, 10, or even 20 dollars were offered for wolves' scalps. Hunters made good money by bringing in scalps of various wild animals for the generous bounties offered. General Root, in proposing a large increase in the bounty for wolves' scalps, said, "the British and wolves have entered into a combination against American wool, and for one, I wish to break it up." Wolf drives were common. The last great wolf drive took place in Tioga county in 1828. The wolves in that section had become so numerous that it was resolved to make a great effort to force them out of the country. Men and boys joined in the drive. The outfit for each man was a gun, a dog, and a cow bell. At night sentinels stood on guard, ringing bells and shooting guns occasionally, so that the wolves would not run back past them. Every man on the line progressed, firing his gun, yelling, and ringing his bell. At night dry trees were set on fire at frequent intervals to frighten the wolves. The drive began on the second Tuesday of February. Every man had his knapsack full of victuals and he got a fresh supply at every house he passed. The line was kept in a semi-circle. Some wolves were shot, but most of them kept well out of the way. Many of the beasts collected ahead of the line. On Friday, the last day, the wolves were driven beyond the Susquehanna. The residents south of the river in Pennsylvania long held a bitter grudge against Tiogans for driving the pests over to them.



## AGRICULTURAL LEGACY OF COLONY

The hog, lowliest of farm animals, received attention in accordance with his rank among livestock. Where wolves and bears were not too plentiful they commonly ran wild in the woods. Parkinson says of the American hog:

“The real American hog is what is termed the wood-hog; they are long in the leg, narrow on the back, short in the body, flat on the sides, with a long snout, very rough in their hair, in make more like a fish called a perch than anything I can describe. You may as well think of stopping a crow as those hogs. They will go a distance from a fence, take a run, and leap through the rails, three or four feet from the ground, turning themselves sidewise. These hogs suffer such hardships as no other animal could endure. It is customary to keep them in the woods all winter, as there is no thrashing or fold-yards; and they must live on the roots of trees, or something of that sort, but they are poor beyond any creature that I ever saw. That is probably the cause why American pork is so fine. They are something like forest-sheep. I am not certain, with American keeping and treatment, if they be not the best: for I never saw an animal live without food, except this; and I am pretty sure they nearly do that. When they are fed, the flesh may well be sweet: it is all young, though the pig be ten years old.”

Apples and pears were grown in abundance, but chiefly as seedling fruits; improved varieties reproduced by grafting were scarcely known. Cider was made in quantities to last the year around and was a staple article of commerce. Peaches were relatively common where the climate permitted their culture and peach brandy was distilled wherever the fruit was grown. The sour pie cherry was an inhabitant of every farmer's dooryard and a tree of the Oxheart sweet was a luxury not to be denied in mild climates. Currants found favor in every good farmer's garden, but American species of grapes, strawberries, raspberries, blackberries, and dewberries as late as 1800 were undomesticated and with huckleberries and cranberries were picked in woods, fence rows, and sunny openings as they grew wild, poor in flavor and small in size. The domestication of these wild berries was an accomplishment of the first half of the nineteenth century to furnish one of the miracles of agriculture in the small fruit industries of the second half. Until after 1800, potatoes and beans

## A HISTORY OF AGRICULTURE

were not salable crops and ranked with a very few vegetables as "garden sauce." Vegetables were few in kinds and in varieties. Since that day the American farmer's garden has been enriched by sweet corn, the tomato, cauliflower, celery, egg-plant, peppers, spinach, cantaloupes, and hundreds of improved varieties of other vegetables. All mushrooms were considered poisonous, as most of them are still thought to be, whereby every community suffered the loss of tons and tons of nutritious, wholesome, delectable esculents. Dandelions, cowslips, and other greens, or the leaves of trees, furnished a part of the vitamins which we now know are necessary to promote health.

Two commercial nurseries supplied the Province with fruit trees. The first of these to be founded was that of Thomas Young at Oyster Bay, Long Island, in 1768. The second, or the two may have been contemporaneous, was the Linnæan Botanic Garden founded at Flushing, Long Island, sometime previous to 1770 by William Prince. For more than a hundred years this was the leading nursery in New York, if not in the United States. In 1771, Prince published a list of fruits for sale, a one-page broadside, listing 24 apples, 9 apricots, 18 cherries, 12 nectarines, 29 peaches, 42 pears, and 33 plums. Of the apples, five originated in America, three of which out of the entire list, Green Newtown, Esopus Spitzenburg, and Rhode Island Greening, are now grown. No one of the other fruits originated in this country and none of these, excepting the Morello cherry, is now under cultivation. Tree fruits of European origin do not thrive in North America and the assertion is warranted that fruit growing did not amount to much in colonial New York.

Flowers found the atmosphere of a pioneer home uncongenial. Besides there were not many flowers colonial women could plant. There were few seedsmen and nurserymen, but seeds of hollyhocks, pansies, forget-me-nots, foxgloves, four-o'clocks, primroses, tulips, pinks, marigolds, daffodils, sunflowers, and a few others could be obtained from stores or by exchange. Even our common geraniums, petunias, and verbenas were not then known. Seedsmen did a little better on herbs, such as the mints, rue, rosemary, thyme, lavender, savory, and marjoram, and various purely medicinal plants could be had, with madder and saffron for dyes.



TO BE SOLD, BY  
**WILLIAM PRINCE,**  
 At FLUSHING-LANDING, 1771  
 On LONG-ISLAND, near NEW-YORK,  
 A large Collection of Fruit Trees, as follows,

English Cherries.

MAY DUKES,  
 Black hearts,  
 White hearts,  
 Carnations,  
 Bleeding hearts,  
 Ox hearts,  
 Amber,  
 Red hearts,  
 Duke cherry,  
 Double blossom cherry,  
 Cluster cherry,  
 Spanish hearts,  
 Jew's hearts,  
 Harrison's hearts,  
 Honey cherry,  
 Kentish cherry,  
 Massarine cherry,  
 Morello cherry.

Plumbs.

Green gage plumb,  
 Yellow egg do. as big as an hen's  
 egg,  
 White sweet dum, bigger than a  
 hen's egg,  
 Orleans do. very large and fine,  
 Imperatrice do.  
 Red imperial do.  
 Catharine plumb,  
 Cherry plumb,  
 Matchless do.  
 Large pear plumb,  
 White imperial do.  
 Drab D'Ore do.  
 Royal do.  
 Apricot do.  
 White bonum magnum do.  
 Violet perdigon do.  
 Red diaper do.  
 Whiton do.  
 Jean hague do.  
 Precious de tous do.  
 Fotheringham do.  
 Damask violet do.  
 Red perdigon do.  
 White perdigon do.  
 Le'Prune valour do.  
 Brignole do.  
 Carline do.  
 White damson do.  
 Large red sweet do.  
 Large Holland do.  
 Early sweet damson do.  
 Late do.  
 Red bonum magnum do.

Apricots.

Large early apricot,  
 Large French brutels do.  
 Orange do.  
 Maculise do.  
 Blouch do.  
 Algier do.  
 Roman do.  
 Turkey do.  
 Small sweet do.

Nectarines.

Fairchild's early nectarine,  
 Large green clingstone do.  
 Yellow do.  
 Red Roman do.  
 Yellow Roman do.

Elvige do.  
 Temple's do.  
 Italian or brugno do.  
 Belayon tardive do.  
 Newington do.  
 Genoa do.  
 Briegon do.

Peaches.

The scotch quince peach,  
 The green muree or early ash  
 ripe in July,  
 The rare ripe peach,  
 Old Newington do.  
 New Newington do.  
 Large early clingstone do.  
 Large early do.  
 Large red clingstone, weighs from  
 11 to 15 oz.  
 Yellow clingstone call'd the Ca-  
 rolina Canada, weighs a pound,  
 Fine large French peach call'd  
 murketong,  
 Fine red clingstone, equal to a  
 pine apple for goodness,  
 English wach peach,  
 Large redstone do. weighs from  
 10 to 15 oz.  
 Large yellow clingstone, weighs  
 10 or 12 oz. ripe Octo. 15th,  
 Large white clingstone, weighs  
 14 oz.  
 Large lemon clingstone,  
 English double roe peach,  
 Large winter clingstone do.  
 Large yellow malagutane do.  
 Large yellow white clingstone do.  
 Large white stone do.  
 White winter clingstone do.  
 Blood peach,  
 Carolina clingstone do.  
 Western Newington do.  
 Barcelona yellow clingstone do.  
 Elizabeth peach,  
 Yellow catharine do.  
 Red cheek malagutane do.

Pears.

Bergamot pear,  
 Catharine do.  
 Vergalieu do.  
 July do.  
 Monsieur Jean do.  
 Troon valente do.  
 French primitive do.  
 Winter bon cretan do.  
 Easter bergamot do.  
 Amber do.  
 Chaumonelle do.  
 Rufflet do.  
 Early sugar do.  
 Baurre vert do.  
 Winter baurre do.  
 Baurre de roy do.  
 Green chisel do.  
 Swan's egg do.  
 Colmar do.  
 Crestan do.  
 Spanish bon cretan do.  
 Large bell pear,  
 Citron de canis do.  
 Summer bergamot do.  
 Autumn bergamot do.  
 Amozelle do.  
 Lent St. Germain do.

Brocus bergamot do.  
 Winter bergamot do.  
 Jargonelle do.  
 Rousillon do.  
 Coulmédan do.  
 Green catharine do.  
 La Chalfaire do.  
 Haspden's bergamot do.  
 Doctor Uvedale's St. Germain do.  
 Large winter do. weighs near two  
 pounds,  
 Pear warden,  
 Empress pear,  
 Large summer baking do.  
 The black pear of Worcester or  
 Parkinson's warden.  
 The striated do.

Apples.

Newtown pippin,  
 Elopas spitzsburg,  
 Pear maine,  
 Vandervel,  
 Large pippin, weighs a pound  
 or more,  
 Large red and green sweet apple,  
 ripe at midsummer, weighs a  
 pound or more,  
 Large early apple, two or three  
 weeks earlier than either Junis-  
 ing or bow apple.  
 English codlin,  
 Early bow apple,  
 Early junkings,  
 Red streaks,  
 Newtown spitzsburg,  
 Jersey greens,  
 Golden pippin,  
 Golden rennet,  
 Ruffetings,  
 Lady apple,  
 Lonpanel,  
 Lidington,  
 Rhode Island greenings,  
 Swaar apple,  
 Large white sweeting,  
 Bell flowers,  
 White pippin.

Mulberries.

Large black English,  
 Black American mulberry.

Fig Trees.

Currants.

Large red currant, of 6 each,  
 Large black do. of 6  
 Large white do. of 6

Quince Trees.

Madeira Nut Trees, 1/6

Black Walnut Trees, 1/0

Grapes, of 6 each Vine.

Goose berries.

Great amber goose-berry, of 6  
 Large yellow oval do. of 6  
 Green goose-berry, of 6

Raspberries.

White raspberry, of 3  
 English red raspberry, of 3  
 American do. of 3

Strawberries.

Large handboys strawberries,  
 The chili do.  
 The redwood do.  
 The handboy and chili strawberry  
 roots 1/0 per dozen,  
 The wood strawberry of 4 per doz.

Ever-green Trees and  
 Shrubs.

Red Virginia cedar, 1/6 each  
 Weymouth's pine, 1/6  
 Pitch pine, 1/0  
 Jersey pine, 1/0  
 Black spruce fir, 1/6  
 Red spruce fir, 1/6  
 Hemlock spruce fir, 1/6  
 Large silver fir, 1/6  
 Silver leaf'd edge'd holly, 1/6  
 Common laurel, 1/0  
 Virginia laurel, 1/0

Timber Trees and flow-  
 ering Shrubs.

American white oak, of 9 each  
 American black oak, of 9  
 Scrubby white oak, of 9  
 Scarlet oak, 1/0  
 Bastard black oak, of 9  
 Black oak of the mountain, of 9  
 Swamp chestnut oak, of 9  
 Mountain chestnut oak, of 9  
 American white thorn, of 6  
 Scarlet maple, of 9  
 Common maple, of 9  
 Sugar maple, 1/0  
 Common ash, of 9  
 White ash, of 9  
 Black ash, of 9  
 Sweet almonds, 1/6  
 Bitter almonds, 1/6  
 Catalpa, 1/6  
 Broad leaf'd dog wood, 1/6  
 White dog wood, 1/6  
 Magnolia, 1/0  
 Tulip tree, 1/6  
 Snow ball tree, 1/0  
 Bastard camellia tree, 1/0  
 Locust tree, 1/0  
 Button tree of Virginia, 1/0  
 Sweet fern, of 6  
 Blue lilac, 1/0  
 White lilac, 1/0  
 Syringa, 1/0  
 Standing American ho-  
 ney suckle, 1/0  
 Candle berry myrtle, of 9  
 Poplar, 1/0  
 Benjamin tree, 1/6  
 Sugar birch, 1/0  
 Black birch, of 9  
 Sassafras, 1/0  
 American alder, of 6  
 Carolina bird cherry, 1/0  
 Dwarf elder, of 4  
 Filberts, 1/6

Any person inclining to purchase any of the above mentioned trees, there is many thousands of a proper size, if any of the above trees should be wanted to send over sea, the purchaser may depend upon having them safely put up in either masts, casks, or boxes, with earth, without any other cost except the first cost of said masts, cask or boxes.

The price of the fruit trees is 1/6 each, except the fig trees 1/6 the massarine cherry 1/6 the morello cherry 1/6 quince trees 1/6.  
 Any person having a mind for any of the above trees, and choose to have them sent to New-York, they can have them sent on Tuesday and Friday of every week, as there is a boat that constantly goes from Flushing to New-York on them days, and may commonly be found at Burling's Slip, (John Yates, master.) If any person should want to send their orders for trees, and the boat should not be there, they are desired to leave them with Mr. William Prince, merchant, at the head of Burling's Slip, in New-York. If any of the seed of the above timber trees, ever-green shrubs, or flower trees, should be wanted, the person may be supplied by applying to said William Prince.

NEW-YORK: Printed by H. O'NEIL, in HANOVER-SQUARE.



## A HISTORY OF AGRICULTURE

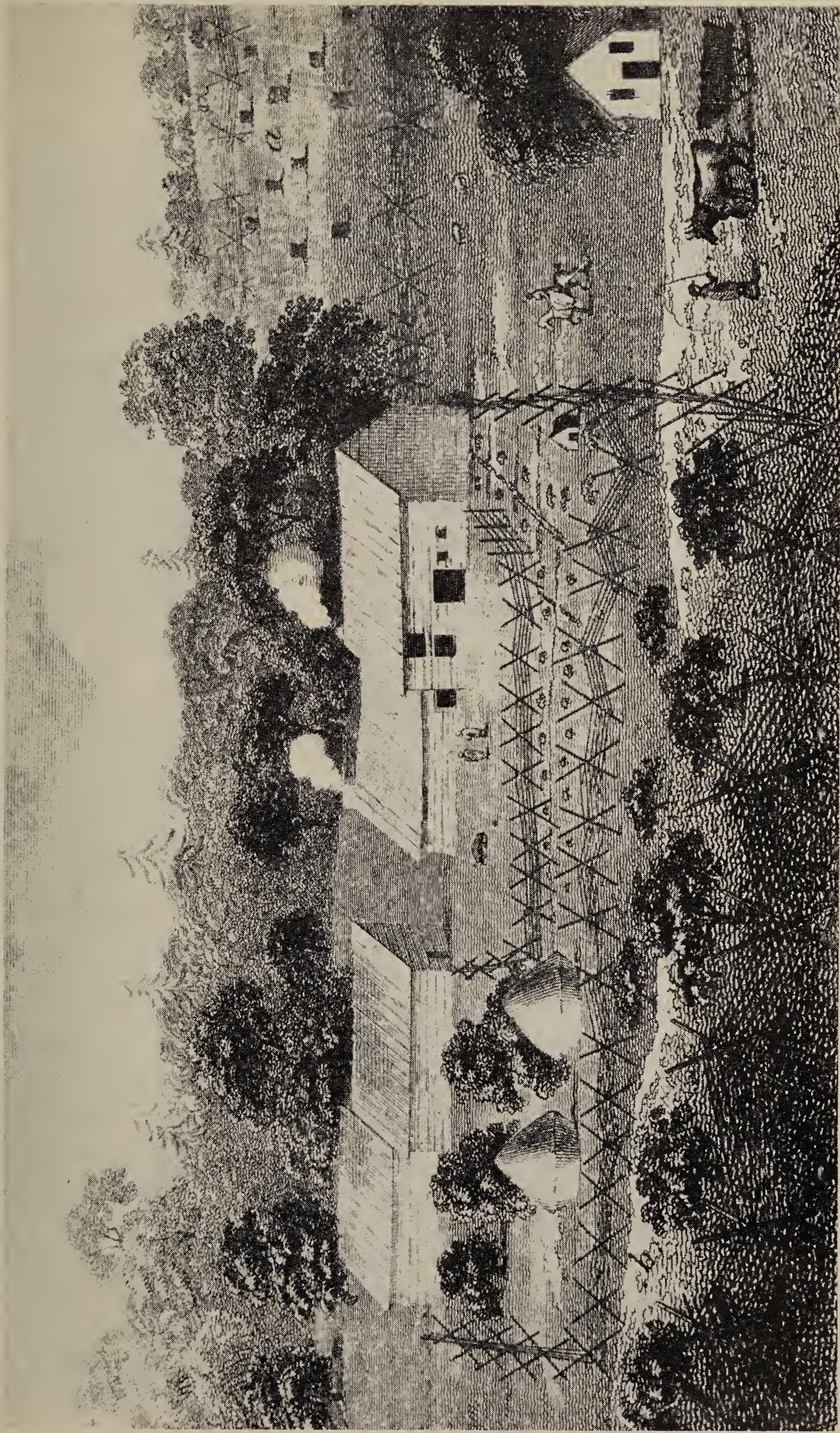
Lilacs, roses in variety, snowballs, and hawthorn were somewhat common. A thousand flowers and shrubs have been introduced since to enrich gardens and lawns. Still, such of these ornaments as the farmers grew helped to brighten the dark and lonely surroundings of the wilderness.

Probably few colonial farmers would have known what is meant by "crop rotation." Most of them followed the plan of letting run-down land lie fallow, covered with noxious weeds. Clover was grown for hay but not as a rotation crop; no one had heard of alfalfa. In New York, as in Virginia, rotation was practiced much as George Washington described it in 1787:

"The general custom has been, first to raise a crop of Indian corn (maize) which, according to the mode of cultivation, is a good preparation for wheat; then a crop of wheat; after which the ground is respited (except for weeds, and every trash that can contribute to its foulness) for about eighteen months; and so on, alternately, without any dressing, till the land is exhausted; when it is turned out, without being sown with grass-seeds, or reeds, or any method taken to restore it; and another piece is ruined in the same manner. No more cattle is raised than can be supported by lowland meadows, swamps, &c., and the tops and blades of Indian corn; as very few persons have attended to growing grasses, and connecting cattle with their crops. The Indian corn is the chief support of the laborers, and their horses."

Very little attention was paid to enriching the land. Manure was neglected and nowhere could it be found treasured as it was in Europe, where the size of the manure pile indicated the prosperity of the farmer. Along the coast and up the rivers fish were put in corn hills as a fertilizer. There were no commercial fertilizers, if we except plaster of which Benjamin Franklin was a champion to the great exaggeration of its value. Ashes were used somewhat as a fertilizer, but not much as they had considerable value in the making of potash for which there was a brisk foreign demand. When land became too poor for profitable cultivation, it was abandoned and a new field of virgin soil was taken from the forest. Thomas Jefferson said, "We can buy an acre of new land





A FARM HOUSE IN THE GENESEE COUNTRY

*From Robert Sutcliff's Travels in Some Parts of North America in the Years 1804, 1805 & 1806*







## AGRICULTURAL LEGACY OF COLONY

cheaper than we can manure an old one." Upland virgin soil, unfertilized and poorly tilled, seldom lasted longer than 10 or 12 years; rich, deep river-bottom land, which all early settlers coveted, did much better.

Land was cheap and labor was dear so that then as now American farmers tried to obtain the largest return from farm labor rather than the largest return from an acre of land. George Washington expressed well this situation. "The aim of the farmers in this country (if they can be called farmers)," wrote Washington to Arthur Young in 1791, "is, not to make the most they can from the land, which is or has been cheap, but the most of the labour, which is dear; the consequence of which has been, much ground has been scratched over and none cultivated or improved as it ought to have been: whereas a farmer in England, where land is dear, and labour cheap, finds it his interest to improve and cultivate highly, that he may reap large crops from a small quantity of ground."

Life was lived in a nutshell, so simple it was and so free from the complexities of more civilized communities. Markets and prices for his crops disturbed the farmer little, for there were none. The crops and animals he grew went in the bottomless pits of many stomachs in his own household, or they were bartered in the nearest town in the miniature department store of the country merchant for a few simple necessities. Ready cash, if any, mostly came from the by-products of the forests which encumbered the land, with some small additions from surplus farm products. At 18 or 20 farm lads married farm lasses of 14 and 16. Life was started with wedding gifts. If well to do, the farmer gave the bridegroom a piece of land, a pair of oxen, a few implements, and a small stock of seed; the bride's dowry was a cow, a bed, a few chairs, and a few culinary utensils. A bee was held to "roll" up a house and the couple were ready to start a family. Children were ushered into the world so quickly and in such numbers as to almost give credence to spontaneous generation. Ten, 15, 20 were welcomed. They came almost without cost and as soon as they could toddle were put at work. The life induced fecundity; parents saw in procreation not only an asset to livelihood but a defense against the illimitable forest—dark, silent, lonely,

## A HISTORY OF AGRICULTURE

unchanging through centuries until the settler came to subdue it. Dr. Franklin, writing before the Revolution, said that a widow with half a score of children was an object for the fortune hunters of America.

The farm woman paid a fearful price for marriage. Incessant child-bearing and the hard, grinding toil indoors and out with almost never a visit to town for the feminine pleasure of shopping and of having a change, gave her no opportunity to keep mind and emotions from starving. Her outlook from the unpainted cabin or log house was a few farm shacks set in thickets of rank weeds, the dunghill, perhaps a cone-shaped stack of straw, and a clutter of half-starved livestock. Sometimes there was a scant garden, and sometimes a Flora would plant a few hollyhocks and pinks and a Pomona would have a clump of currants and a half-dozen fruit trees. Without cultivation or attention to pruning and pests and subject to the browsing of farm animals, fruit trees must have been petty and insignificant in the near presence of robustous forest neighbors. Such was a pioneer woman's outlook. Dreary! Dreary! Sublime in dreariness!

Perhaps this picture of a farm home in early New York is too drab. Certainly Washington Irving gives a much brighter one in *Wolfert's Roost* and *Sleepy Hollow*. Here is his description of a farm scene, taken from *Wolfert's Roost*:

"Here were small farms, each having its little portion of meadow and corn field; its orchard of gnarled and sprawling apple trees; its garden in which the rose, the marigold and hollyhock grew sociably with the cabbage, the pea, and pumpkin: each had its low-eaved mansion redundant with white-headed children; with an old hat nailed against the wall for the housekeeping wren; the coop on the grass-plot, where the motherly hen clucked round with her vagrant brood; each had its well, with a moss-covered bucket suspended to the long balancing pole, according to ante-diluvian hydraulics; while within doors resounded the eternal hum of the spinning wheel."

In the *Sketch Book*, Irving describes the interior of a Dutch farm-house. Ichabod Crane is paying a visit to Katrina Van Tassel:



## AGRICULTURAL LEGACY OF COLONY

"When he entered the house the conquest of his heart was complete. It was one of those spacious farmhouses, with high-ridged, but lowly-sloping roofs, built in the style handed down from the first Dutch settlers; the low projecting eaves forming a piazza along the front, capable of being closed up in bad weather. Under this were hung flails, harness, various utensils of husbandry, and nets for fishing in the neighboring river. Benches were built along the sides for summer use; and a great spinning wheel at one end, and a churn at the other, showed the various uses to which this important porch might be devoted. From this piazza the wondering Ichabod entered the hall, which formed the centre of the mansion and the place of usual residence. Here, rows of resplendent pewter, ranged on a long dresser, dazzled the eyes. In one corner stood a huge bag of linsey-woolsey just from the loom; ears of Indian corn, and strings of dried apples and peaches, hung in gay festoons along the walls, mingled with the gaud of red peppers; and a door left ajar gave him a peep into the best parlor, where the claw-footed chairs, and dark mahogany tables, shone like mirrors; and-irons, with their accompanying shovel and tongs, glistened from their covert of asparagus tops; mock-oranges and conch-shells decorated the mantel-piece; strings of various colored birds' eggs were suspended above it: a great ostrich egg was hung from the centre of the room, and a corner cupboard, knowingly left open, displayed immense treasures of old silver and well-mended china."

But the period in which Irving's stories were put was a little later than colonial New York in which time Dutch farmers were by no means as happily situated as *Wolfert's Roost* and *Sleepy Hollow* picture. Besides, Irving saw with a poetic eye and wrote with a poet's license. Judged by what the travelers of the time wrote of the Knickerbocker Dutch, we have let Irving's charming stories greatly mislead us as to their possessions, characters, and manners of life.

There is little to be learned about the prices paid or the kind or the quality of farm labor in accounts of colonial agriculture. No doubt most of the work was done by the owner of the land. There were indentured laborers brought over from Europe who signed away their freedom until the expenses of crossing the ocean

were paid. Labor was handicapped by the infamous practice of the British in sending felons to the colonies as indentured laborers so that many laborers wore the stigma of disgrace which was of

## 6 Cents Reward.

**R**AN away from the subscriber on Tuesday, the 4th inst. *Samuel Crawford*, an indented apprentice to the Farming business, aged 16 years. All persons are forbid harboring or trusting said boy under penalty of the Law. The above reward but no charges will be paid for his apprehension.

JOHN RUMSEY, *Senior*.

*Fayette, Dec. 14, 1821.* 11:3

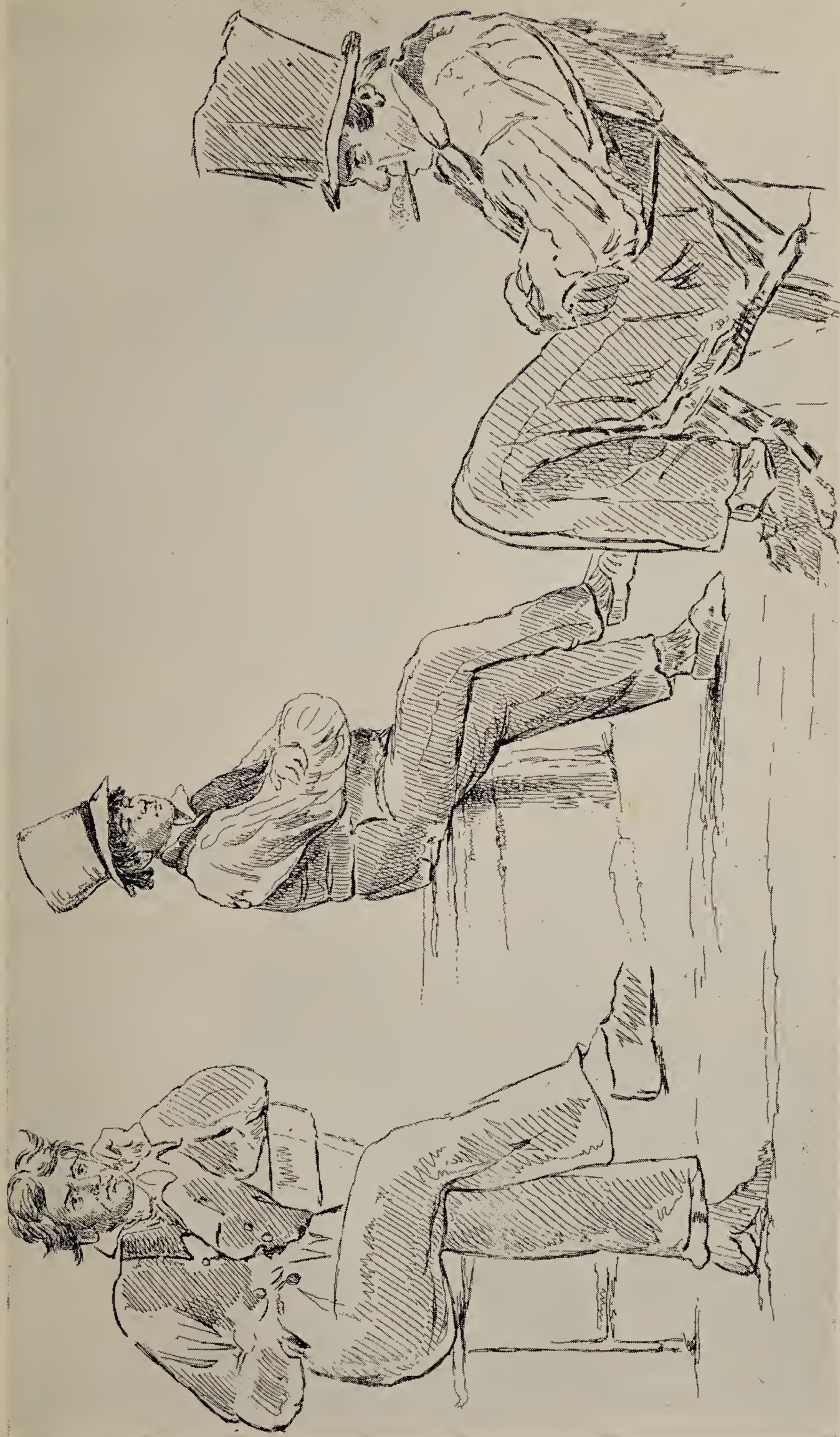
course shared by fellow workmen who were not criminals. The practice of "binding out" children, mostly boys, was common and continued until well toward the Civil War. A boy bound out usually received in return for his services his board, clothing, three or four terms of school, and, on attaining to majority, a horse, or a yoke of oxen and a hundred dollars in money.

There was a deep-seated prejudice against such service, and "I'll bind you out" was a common threat of a father to an errant son.

Labor conditions in colonial New York were very unfavorable to agriculture. From the beginning of the Colony quite down to the Revolution there was a disinclination on the part of laborers in other provinces and from European countries to settle in New York because England deported criminals and other objectionable persons to the Province. The City of New York maintained at the foot of Wall Street a slave market, the number of slaves in the Province in 1723 being more than 6,000. Not all the slaves were black, for not infrequently indentured servants were offered for sale. Truth is, the Province had a bad name throughout the whole of the New World and the better classes of emigrants from Europe steered clear of it. The Province of New York, it will be remembered, was a favorite resort for pirates, to whom in the early part of the eighteenth century it seems not to have been inhospitable. No doubt, the fear of Captain Kidd and his ilk kept many worthy settlers and laborers from the Province.

Happily the institution of indentured servitude was not a legacy from the Colony to the State. It had existed from the beginning of English government in the Province and independence brought it to a close. Its evolution and status can readily be





BACKWOODSMEN  
From an etching by Basil Hall, 1829





traced in the colonial laws of the Province and the City of New York and later in local newspapers. An interesting advertisement in the *New York Mercury* of January 14, 1765, was to the effect that Captain Burke was to sell on board the brig *James* at Crugar Wharf a number of indentured slaves, men, women, and boys. Other advertisements give the personal character of indentured servants—looks, clothing, and trades. Thus in the *New York Mercury* of June 3, 1765, a run-away, George Fisher, a book binder, was described as “5 feet, 5 inches high, very thick, stoops much and has a down Look. He is a little pock-marked, has a star on one of his Temples, is much addicted to liquor, very talkative when drunk and remarkably stupid.” Nancy Perron, another run-away, was advertised as being “25 years old, fresh coloured, with black curl’d Hair, thick and well set, round fac’d and looks very impudent.” Catherine Welch was depicted as the possessor of “a homely face with a disagreeable cast in her eyes.” No farm servants seem to have been advertised, and yet of such there must have been not a few. One cannot so much as guess at the number of indentured servants in the Province of New York during the hundred and more years of English rule, but there must have been many thousands of them, and of these it would be impossible to say how many were voluntary and how many involuntary servants. A very considerable proportion of them, one may be allowed to guess, were petty law breakers sentenced in England to serve time in the Province.

We get a very good view of labor in the colonies from the pen of Benjamin Franklin, who wrote:

“So vast is the Territory of North-America that it will require many Ages to settle it fully; and till it is fully settled, Labour will never be cheap here, where no Man continues long a Labourer for others, but gets a Plantation of his own, no Man continues long a Journeyman to a Trade, but goes among those new Settlers, and sets up for himself, &c. Hence Labour is no cheaper now, in Pennsylvania, than it was 30 Years ago, tho’ so many Thousand labouring People have been imported.”

The pernicious slave-trade cut down the demand for labor and therefore wages in the colonies. While slavery was a well-known

## A HISTORY OF AGRICULTURE

institution in provincial New York, it did not greatly disturb economic conditions, although human chattels were once sold in New York as were the ox and the horse. Fewness of slaves was not due to objections to human bondage, at least not at this time, for the Dutch first brought the negro to America in 1619, and for a century thereafter some of the best citizens in New York carried on the overseas slave trade. Uncongenial climate and diversified crops which required intelligent management, more than humanity and theology, brought about the abolishment of slavery in New York. This came in 1827, although in 1799 a law was passed freeing all children born in slavery. In eastern New York, the Dutch owned most of the slaves, using them as house and barn servants, but in western New York emigrants from Virginia and Maryland who came by the way of the Susquehanna were the slaveholders.

Sir William Johnson was the largest slaveholder in the Colony of New York. His accounts show that in 1747 he purchased 19 slaves from an estate in Dutchess county and continued to add to his holdings of human flesh until ultimately he possessed between 60 and 70 slaves. His negro men were employed in taking care of the horses and other livestock of his estate; the women did the housework in his household. It is on record that he was a kind and easy master. His slaves were not permitted to intermarry with the Indians as they often did in southern states.

Money transactions, even to making change in a store, were not simple matters. We who are accustomed to the dollar as a unit of value have but a faint conception of the difficulties which beset the colonists with the dollar, pound, and Spanish dollar as units, and these standards not of the same value in different states and communities. Some idea of the confusion is given by the following table of money values taken from Thomas's *Farmer's Almanack* for 1791:

The Value of the several Pieces of Silver Coin now in Circulation in the United States, in Federal Currency.

	Cents	Mills
One fourth of a Pistareen or half Dime . . . . .	5	0
Four pence halfpenny . . . . .	6	2½



AGRICULTURAL LEGACY OF COLONY

	Cents	Mills
Half Pistareen, or Dime.....	10	0
Nine pence piece, or 1/8 of a Dollar.....	12	5
Pistareen or two Dimes.....	20	0
Quarter of a Dollar.....	25	0
Half a Dollar.....	50	0
Dollar .....	100	0
Half a Crown, French.....	55	0
Half a Crown, English.....	55	5
Crown, French .....	110	0
Crown, English .....	111	0
10 Mills are	1 Cent	
10 Cents –	1 Dime, or Disme	
10 Dimes –	1 Dollar	
10 Dollars –	1 Eagle	

Coinage suggests postage. Mail carrying in colonial New York was a private enterprise, but the government took over the task soon after the Union was formed and one of the petty vexations of American life in the early days of the Union, and for that matter a half century later, was posting and receiving mail. Letters and papers might be either prepaid or collected for on delivery. The postman came irregularly, and uncertainly; always until the middle of the nineteenth century postage rates were intolerably complicated and costly. Files of old newspapers, or better still the farmers' almanacs of the time, give some idea of what a nuisance postage was. From an almanac of 1798 this table of postage is given:

Rate of Postage of every single letter by land

	Miles	Cents
For every single letter	30	6
	60	8
	100	10
	150	12 1/2
	200	15
	250	17
	350	20
	450	22
For more than	450	25

## A HISTORY OF AGRICULTURE

In 1800 the postal authorities sent out a new schedule of rates, as follows:

Every letter composed of a piece of		
paper, conveyed not exceeding...	40 miles	8 cents
Over 40 miles and not exceeding...	90 miles	10 cents
Over 90 do.....	150 miles	12½ cents
Over 150 do.....	300 miles	17 cents
Over 300 do.....	500 miles	20 cents
Over 500 do.....	.....	25 cents

It will be noted that these rates are for letters composed of one piece; for two pieces of paper, double rates were charged; three pieces, triple; and four pieces, quadruple rates. The charges for postage in 1800 remained without many changes until 1816 when the rates again took a jump, as follows:

### Rate of Postage of every single letter by land

Miles	Cents	Miles	Cents
40	12	300	25½
90	15	500	30
150	18¾	For more than 500	37½

It would be interesting to follow the rates of American postage from its beginnings in 1793 down to the present, as might easily be done in any file of almanacs, but the few tables given show sufficiently well how difficult and unsatisfactory communication by letter was in the old days.

Until long after the colonies were well established, no such thing as postage or a post existed. The population in any of the colonies for the first century after the settlement of the country was so scattered that post roads and post masters could have found little to do. It was not until 1753, when the post-offices of the country passed into the hands of Franklin, that post roads were established and these were few and but poorly equipped. It was Franklin's boast when he was put out of office in 1774, "that this branch of the public service which, until he assumed its charge, had never paid one penny to the King, yielded



## AGRICULTURAL LEGACY OF COLONY

in his day more than three times the income of the Irish post-office." It was to the humble beginning made by Franklin that the postal branch of public service, which, more than any other, has aided the growth of trade and the prosperity of the country that we are indebted. In colonial times and until long after the Revolution in the newly-settled communities distant from the great post roads, the slowness and irregularities of mails was greatest. A letter could now go around the world in less time than it took to reach settlements in western New York from New York City in 1800. Then and until railroads had been constructed, half the village assembled on "post day" to be present at the distribution of the mail which might be weekly, often fortnightly, but always a day of importance in any community even though the number of letters might be less than a dozen.

Poor as the agriculture of the period was, the rewards of labor, skill, and thrift to successful farmers showed the economic possibilities open to industrious men with foresight and also started the Colony on its way to prosperity. The independent life away from towns and near neighbors developed individual responsibilities and a sense of individual rights which gave the colonists advanced political ideas and made them good soldiers in the conflict with England which was at hand.

## CHAPTER V

### MIGRATIONS

**O**UT of the teeming hive of Europe swarms of husbandmen settled the lands along the Atlantic coast in the New World. Again, and many times again, American human hives, European exotics the first generation, have filled and swarmed, the new flights always departing westward. So America has been settled; so New York was settled. The agriculture of a new region depends much upon the derivation of its people. The greatly diversified farming industry in New York is due to its heterogeneous people as well as to variant soils and climates. It is well then to make a brief survey of the nationalities of New York farmers; to set forth their characteristics and their contributions; and to show how the agriculture in some parts of the State has been profoundly influenced by European nations.

The Dutch came first, and though their numbers were comparatively few and though their political organization in New Netherland was of brief duration, yet Dutch farming was long the type in western Long Island, Staten Island, on both sides of the Hudson, and well up the Mohawk. A much later migration of Pennsylvania Dutch, most of whom were German expatriates who had been for a long or a short time in Holland, introduced a kind of farming in parts of southern, central, and western New York quite different from that of the Knickerbocker Dutch in eastern New York. The names of geographical divisions and towns are somewhat indicative of localities settled by the two classes of Dutch, as those of the people surely are, and one who has traveled much in the State would at once point out Dutch architecture in old buildings. The vernaculars of some communities would show Dutch origin, or at least would have done so a few years ago in a catalog of crops, foods, implements, and furniture.



## MIGRATIONS

The influence of the Dutch on the agriculture of New York is amazing. Although but a few hundred Hollanders settled in New Netherland and the government they established lasted but 40 years, yet the impress of the Knickerbocker Dutch, as distinguished from the Holland Land Purchase Dutch, has been felt in every farming community in New York, in farm operations, and in the manners, morals, modes of life, and even in the language of the people who till the soil, while the name "Knickerbocker" well characterized until a few decades ago the inhabitants of the nation's largest city. We are conscious of the Dutch at every turn in the history of agriculture in New York. The debarkation of the first Hollander in New Amsterdam from the ship *Goot Vrow* was an event of which New York Dutch should be as proud as New Englanders are of the *Mayflower* and Plymouth Rock.

Under the sober sway of the Dutch, whom Irving depicts so delightfully as eating, drinking, smoking, fiddling, dancing, and dozing life away, a number of villages on Long Island and at the mouth of the Hudson emerged from the swamps and forests exhibiting the mingled appearance of town and country. By and large, however, until the English came the Dutch were mostly traders in furs and other forest products, and it remained for the English to give life to agriculture in the Colony, which then grew apace up the Hudson. It was under competition that the Dutch made headway and developed their very distinct agriculture. The farms in the rich lands of the Hudson and Mohawk were chiefly peopled by the Dutch who remained for several generations an unchanged race, retaining the religion, customs, character, and language of Holland. They were industrious, sagacious, quarrelled little with the Indians, and withal planted their penates so peacefully and took root in the soil so fixedly that the Dutch, anglicized in language, after three centuries, may still be recognized in all rural New York.

Later, the Holland Land Company came to New York and with other Dutch capitalists owned several blocks of land in western, central, and northern New York, as the Holland, Cazenove, Adgate, Service, Oothoudt, and Woodhull tracts. Now the Holland Land Purchase holdings in western New York were

largely managed by Americans, but their central New York lands were for the most part in the hands of Hollanders, and a splendid lot of men they were. Wherever in New York these Dutch capitalists owned, sold, or settled land, agricultural interests were greatly advanced by the money and brains the Dutch supplied. A short muster-roll runs as follows: Gerrit Boon, after whom Boonville was named; Paul Busti, general agent of the Holland Company and patron saint of Bustville; Theophile Cazenove, agent for Dutch firms in America and founder of Cazenovia; Joseph Ellicot for 27 years at the head of the Holland Company, who gave his name to Ellicottsville; Jan Lincklaen, agent at Cazenovia and staunch friend of early settlers; Mappa, agent at Oldenbarneveld, after whom the village of Mappa was named; Jacob S. Otto, agent in Cattaraugus who originated the idea of taking crops, "payment in kind," in land sales; Francis Adrian Vanderkemp, Dutch minister, patriot, writer, and American land-owner and farmer. It is jokingly said that the Knickerbocker Dutch, in their small way, "farmed by sleeping;" not so with these Holland Land Purchase Dutch. They were men of large affairs, ever wide awake, and to them rural New York owes a very great deal.

Perhaps no better opportunity will offer to give to one of these Dutch benefactors credit for an idea which soon after bore notable fruit. In 1795, Francis Adrian Vanderkemp called a meeting at Whitesboro, to be held at White's tavern, for the purpose of organizing an agricultural society for New York. His address at this meeting contained much that must have been helpful. He praised farmers for cheerfulness and courage and criticized them for indolence, waste, and bad farming as is the approved custom since Cato and Varro long before Christ. His suggestion that prizes for essays on all sorts of rural subjects be written in Latin, Dutch, French, and English smatters more of the midnight candle than the dunghill. His advice to secure new tools, new seeds, and to keep up with the times was not bad, but his suggestion to study nature was ahead of his time as was that to enter into correspondence with the great agricultural societies at London, Amsterdam, Göttingen, Berne, and Paris. But it was Vanderkemp who first suggested an agricultural society and paved the way for the New York State Agricultural Society.





FOREST SCENE  
*From a Currier & Ives print*







French Roman Catholics left vestiges of people and customs in the northern counties along the St. Lawrence and Lake Champlain, but they seem to have made little progress in real agriculture and certainly there remains no signs of great French influence on farming in northern New York. Of French names in the region there are many, and of romance, were this the place for romance, there was much. I speak now particularly of the French who came after the French Revolution and not of the explorers and traders of earlier years, although while the French were masters of Canada not a few grants of land were made and seigneuries established in the north country. The French Revolutionists were of quite a different class and something must be said about them.

During the French Revolution, Bourbon refugees, broken in spirit and hounded by the revolutionists, sought America as a sanctuary from their troubles. Many of them were titled, highly educated, and wealthy, but none were fitted for the hardships of pioneer life. Several colonies of these refugees came to New York with romantic plans of Arcadian settlements in which they might enjoy rural felicity. They fled American cities and in every instance took to the wilderness where they hoped to gather together the forces of body and soul and begin a wholly new life. In the seclusion of the forest, far removed from human strife, they would find tranquillity, live calmly, sanely, and serenely, facing only the essentials of life.

Of the several colonies of these refugees which came to New York, settling chiefly in Lewis, Jefferson, and Oneida counties, perhaps of most interest is Castorland. In 1792, Pierre Chassanis purchased out of the great Macomb Tract in Lewis county 210,000 acres of land for an association later organized as *La Compagnie de New York*. The name "Castorland" was given to the settlement. Large sums were spent by the French company, but most of the refugees stayed but a year or two and then returned to France so that the enterprise had to be abandoned. But out of the attempt came a distantly related but far-reaching happening. James Donatianus Le Ray de Chaumont, son of Franklin's friend at the French court, brother-in-law of M. Chassanis, later became much interested in Castorland and lived several

years in the colony. In 1832, he became the founder and first president of the New York State Agricultural Society.

Those who know New York well will agree that these French nobles and urbanites could hardly have chosen in the State lands less suitable for farm homes, outside of untillable mountains, than the virgin forests of the sub-arctic north woods. Pioneers better suited by nature and training for subduing the wilderness would have needed stout hearts and strong hands for this country, as yet almost unknown to civilized man. One can scarcely imagine the discomforts which these French settlers who had been reared in luxury had to suffer. The men were ignorant of farming and the women knew little of the commonest domestic affairs. These unsuitables quickly found that they could not contend against harsh nature and one by one sought happier surroundings in American towns and cities or returned to Europe, leaving nothing distinctively French other than a score or more exotic names.

This interesting and romantic chapter in the settlement of New York is of so little moment to agriculture that we have small concern with it, yet before leaving it the reader must be reminded that Louis Phillipe, then Duke of Orleans, visited New York and was so much interested in the possibilities of agriculture that he contemplated becoming a New York land owner. Nor is it to be forgotten that there was a second influx of French refugees soon after Napoleon's glorious star sunk at Waterloo never to rise again. Among these loyal followers of the Little Corporal who came to New York was his brother, Joseph Bonaparte, who purchased a large tract of land in Diana, Jefferson county, and made his home there two summers.

After the revocation of the Edict of Nantes in 1685, which deprived French Protestants of religious and civil liberty, several groups of French Huguenots came to New York to enjoy the liberties which their own country denied them. They were far better fitted for life in the New World than the refugees from the Revolution and the Bourbons who came later, and most of them became permanent residents. These Huguenots contributed much in manhood and in the arts, including agriculture, in all of the communities to which they came. They made settlements in Dutchess, Orange, Richmond, Ulster, and Westchester counties



## MIGRATIONS

as early as 1690 and continued to come to the State for several decades following. They brought with them a knowledge and love of horticulture which their descendants have followed to the present time to the great enrichment of horticultural industries in the Hudson valley.

The Huguenots, unaccustomed to frontier life, not always in harmony with Dutch and English neighbors and until after the Revolution largely at the mercy of the savages, paid a frightful price for freedom to worship. Their losses in physical comforts could only be made up by the acquisition of that which they could not have in any part of Europe—hope. The Huguenots took their hardships with smiling faces for they were French, born with sunshine in mind and heart, and though long sufferers from persecution possessed atavistic tendencies to dance and sing. Life was never quite destitute of joy, sodden, and beast-like to the Huguenots as too often became the case with other peoples.

Religious persecution also brought the Palatinates to the New World and to New York. The name "Palatinate" is given particularly to a district in Germany, part of Bavaria, west of the Rhine. At the turn of the eighteenth century a religious sect, or rather several sects, sprang up in this Bavarian Palatinate. These sects believed more or less in common in baptism by immersion, general redemption, the kiss of charity, and the washing of feet at communion. Various and sundry other beliefs and practices separated the several sects. These German Baptists, as they may be loosely called, settled most largely in Pennsylvania, but a branch of them in considerable numbers found refuge in eastern New York in the counties of Columbia, Montgomery, Schoharie, and Ulster.

At Germantown, Columbia county, a large colony of Palatinates took land on a part of Livingston Manor. It was designed that these Germans were to be employed in raising hemp and in making tar, pitch, and resin for the royal navy. They came in 1710 under the patronage of Queen Anne. In Montgomery county another colony settled on a patent called "Stone Arabia," a name changed in 1773 to Palatine. The present Palatine Bridge and Palatine Church, remnants of this early settlement, are familiar to all travelers on the Mohawk. The first white settle-

ments were made in Schoharie county in 1711 in several villages of these people, each under the leadership of an outstanding man for whom the village or *dorf* was named—thus *Weiserer's Dorf*, *Hartman's Dorf*, *Garlock's Dorf*, and so on. In Ulster county a colony of Palatinates located at West Camp in 1710.

The political tumult in Germany toward the middle of the nineteenth century drove great numbers of Germans into exile, many of whom came to New York and settled in Erie and Niagara counties. In Erie county in 1850 it was estimated that one-third of the population was German, chiefly Prussian. Some of this German migration settled in Buffalo and small towns in the two counties, but most of them bought farms on long credit from the Holland Purchase Company. Soon the husbandry of the region was given a distinctly German flavor. In particular, the Prussians were notable truck gardeners, and rapidly built up a large trucking industry which still persists. They brought with them ministers, teachers, mechanics, tradespeople, so that their communities soon took on a marked foreign aspect, characterized agriculturally by industry and thrift.

But the rural population of New York is overwhelmingly British—English, Scotch, Irish—disciples of Tusser, Markham, Hartlib, Tull, Young, and Cobbett. And so the people, language, modes of life, methods of tillage, crops, animals, and domestic practices we have to consider in this narrative are chiefly those that came from the British Isles. Down to the Revolution, British rulers wholly and British clergy, soldiery, and merchants in great preponderance helped to make more pronounced British husbandry. The rank and file of English, Scotch, and Irish came to appease the hunger for land. They wanted homes of their own. British of higher social standing came with minds fixed on three great prizes—Adventure, Distinction, Wealth. Economic conditions in Great Britain were distressing, both men in high standing socially and the poorer classes were hard pressed to make ends meet. The opportunities in America were painted by word of mouth and in printed form in glowing colors with little said about the drawbacks and the English in particular looked toward



## MIGRATIONS

it as a land of economic hope and a refuge for political and religious outcasts as well.

The coming of the Scotch-Irish to America early in the eighteenth century was a vital addition to nearly all of the colonies. Few of these Scotch-Irish first settled in New York, but in the second and third generations many came from New England and Pennsylvania to central and western New York. It was to be expected from their ancestry that they would preserve and expand the spirit of freedom and make energetic and thrifty citizens. These Scotch-Irish for most part came from Northern Ireland, where they had been attempting to maintain the faith of Calvin and the teachings of John Knox. Incidentally, their political faith was devoted to freedom, especially against what they considered the oppression exercised by the English crown. Unable to find peace in the British Isles, they began to emigrate in great numbers to a new world, and by 1725 the westward migration had reached large proportions. A common statement was that ships enough could not be found to carry to America from Ulster the men who were unwilling to live except in the air of religious freedom.

This Scotch-Irish migration continued for over half a century. At its height, more than 30,000 of them crossed the Atlantic in a period of two years. They were of the best blood of the British Isles. Many had been schooled in universities. Some were farmers, others mechanics, ministers, teachers, and tradesmen. Possibly they were the best emigrants from the Old World to the New. To this Scotch-Irish emigration, America is indebted to Knox, Stark, Wayne, Sullivan, and the Clintons, all generals in the Revolutionary War. From the same ancestry came Patrick Henry, Daniel Boone, Andrew Jackson, James K. Polk, Horace Greeley, and many another famous American. From the New England settlements of Scotch-Irish, great numbers of the second and third generations came to central and western New York. Cherry Valley was almost wholly settled by them and large numbers took up land on the Schoharie and Mohawk and later migrated or sent their children farther west in the State. The surveyor's chain and rod were very familiar instruments to these

## A HISTORY OF AGRICULTURE

Scotch-Irish and there are few regions in New York in which the name of the early surveyor does not bespeak Scotch-Irish ancestry.

Central and western New York were peopled with immigrants from the east—the swarming of the hives on the Hudson, in New England, Pennsylvania, and New Jersey. A few settlers came direct from Europe, and Maryland and Virginia, now beginning to teem with people, sent sons and daughters in considerable numbers. In consequence of this intermixture of emigrants, there was great diversity in trade, customs, tastes, dialects, and religions. But in most communities New England traits prevailed. However, there was a difference to be noticed between early New England settlements and those which their descendants made in New York. In early New England, fear of the Indians compelled the building of compact villages and fortified houses. Communities were thickly populated. West of the Mohawk in New York, when settlement began, there was little fear of the Indians, and a vast tract of wild land lay open, reached by extensive waterways and well-marked Indian trails. Diversity of soil and timber constituted varying attractions to individuals. Hence, in western New York, a few families might form a new settlement, and a single family might live for years miles from a neighbor.

Emigrants in New York differed widely from those in New England as to object of settlement. The British came to New England fugitives from religious persecution, seeking religious freedom. Some had hope that they might civilize and Christianize the Indians. Religion and missionary enterprise were much less in the minds of New Englanders who came to New York. Worldly, temporal considerations were the mainsprings of action in settling New York. Land speculation, fertile farms, affluent circumstances, with some taste for romance and novelty, and no little desire to get rid of the sombre restraints of religious institutions, gave the chief impulse to many to come. Not a few were worn and jaded men in business who came as invalids go to a water-cure, impelled by the hope that the appetites of the body would be galvanized—that hunger, thirst, sleep, love, would be renewed and life furnished with more pleasures between the two eternities. Young hearts in old bodies came to conserve youth in



## MIGRATIONS

a new land. With people of such diverse purposes and impulses was much of the State populated from older settlements.

The first to come in a new country, when immigration is voluntary, are, as a matter of necessity, enterprising and industrious. The characters of American pioneers have often been drawn. Those of New York were not a whit different in most respects from those who founded the 47 sister states. The poverty of the soil and the badness of the climate in New England had produced certain traits—a shrewd, calculating, inquisitive, thrifty people—lumped as “Yankees.” All in all, these Yankees seemed best fitted for the young country, and the State is probably more indebted to them for its quick prosperity after becoming an independent commonwealth than to any other people.

The Revolution developed a vast optimism and an audacious self-confidence which in a few decades became so pronounced that world-wide travelers have ever since assigned them to the American people as our most assertive traits. Certain it is that no man who did not have them could make much of a success in any frontier settlement. One finds in the early accounts of hamlets settled by the soldiers of the Revolution in central and western New York the same exaggerated statements of natural resources and of belief that its region is the choicest place in the world for agriculture, or the site of a great city or industry, that throughout the years following characterize the advertising literature of every frontier town. Optimism, self-confidence, aggressiveness, and the primal physical qualities of strength, courage, fecundity—there is need of many children in pioneer homes—are a first-rate combination of characters for a newly settled country.

So much for the people. What were the conditions under which the principal agricultural lands of the State were brought to farming conditions?

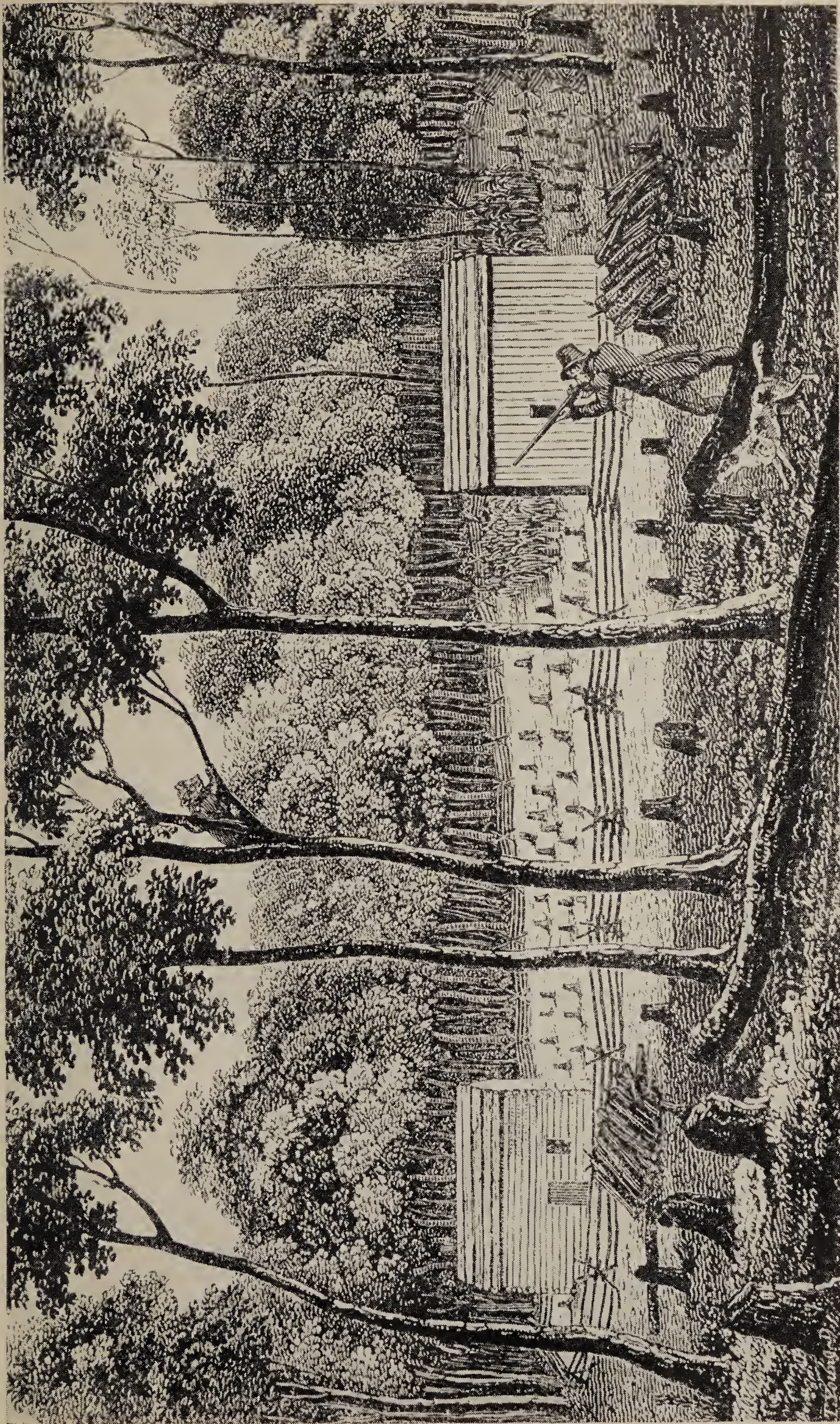
At the close of the Revolution, there was the greatest distress and hardship among the people in the colonies. Thousands of farms had been laid waste. Heads of families had fallen in battle. The government was unsettled. There was little money and credit was poor. The colonies had not adopted a constitution and seem-

ingly could not. Ruin and desolation were either in actual existence or were threatened on every side. Then came a reaction. The Union was formed under a workable constitution. There was a revival of public credit and an increase in money capital so great that it excited enterprise everywhere and produced a dangerous spirit of speculation and gave rise to all sorts of projects for making fortunes in a short time, chief of which everywhere was land speculation. In the chapter on Land we have mentioned some of these huge speculations and the men of sanguine temperament who managed them. It was, for most part, in the era of speculation in the 1790's that the lands of the Iroquois passed from the hands of the red men to those of the white.

The western battle line of the War for Independence was in the heart of the Genesee country, its most western battle at an Indian village, Little Beard's Town, on the flats near the present village of Cuylersville, where General John Sullivan fought the Six Nations, allies of Great Britain. This was the last skirmish in Sullivan's brilliant campaign and drove the Indians to the protection of the British guns at Fort Niagara. There was another result than Sullivan's victory of much moment to the region. The soldiers in Sullivan's army of 5,000 men were delighted with the beauty and amazed at the fertility of the land. Nowhere along the coast of the northern colonies was there anything to compare with it. Indian plantations of corn, beans, and squashes and orchards of apples and peaches cast a spell over them. "An earthly paradise," a "veritable Eden," their descriptions ran when they returned home. They were soon to find that the way to it was as difficult as the path to heaven.

The state of civilization and the rapidity of the change can be seen by taking a look at the towns and cities in 1790. Not one of the opulent towns that a quarter of a century later were the boast of central and western New York then existed or were more than wretched hamlets in the wilderness. Utica, built on the ruins of a fort, was incorporated as a village in 1798. Between Utica and Fort Niagara there were no towns. Until 1809 Syracuse was known as "Bogardus Corners" and did not become a village until 1825 nor a city until 1847. In 1805, where the beautiful city of Auburn now stands there was an insignificant





ROCHESTER IN 1812

“When I saw your place in 1810 without a house, who would have thought that in 1826 it would be the scene of such a change?”—DeWitt Clinton to Everard Peck.







## MIGRATIONS

hamlet, Hardenburgh Corners. Rochester, a splendid city of 20,000 people in 1840, had not a single inhabitant in 1810 when DeWitt Clinton visited the Falls of the Genesee, and in 1822 was still known as "Rochesterville." Buffalo, the metropolis of up-State New York and long "Queen City of the Lakes," was made Buffalo Village in 1810, before which time it was a squalid Indian trading post. In 1860 it had 251 miles of laid-out streets. Elmira and Binghamton were detached hamlets. In 1818, Elkanah Watson wrote of Geneva:

"In '91 I found here a few log huts scattered along the slope of a hill, inhabited by a gang of lawless adventurers, who were prostrated by the fever and ague. The place was then notoriously unhealthy, from the proximity of an extensive marsh. It is now (1818) not only an elegant but a salubrious village, and distinguished for the refinement and elevated character of its society."

On the site of every other town and city west of the Hudson in 1790 was wilderness, a wretched hamlet, a rude fort, or a half-civilized trading post.

When Washington with Governor Clinton, in 1783, only 150 years ago, visited Crown Point and Ticonderoga, he found a few shacks outside the fortifications; deer and black bears roamed in the nearby forest. Where Saratoga, the magnificent, now stands there was a barrel sunk in the ground from which water boiled and bubbled, medicine for the Indians. Coming to Schenectady, long settled but still a village of log huts, unpainted cabins, and a few good houses, they were rowed up the Mohawk past a score or more Dutch settlements "to have a view," as Washington wrote, "of that tract of country which is so much celebrated for the fertility of its soil and the beauty of its situation." At Fort Schuyler, formerly Fort Stanwix, now Rome, they had all but reached the limits of New York's settlements. Rowing and poling up Wood Creek into Oneida Lake they were in the wilderness where foxes, the otter, the lynx, and now and then a beaver were still caught by trappers. Westward the only humans were the tribes of the Six Nations who lived by exchanging skins, including the buffalo, still found west of Niagara, for wampum, shells, beads, guns, kettles, and fire-water.

## A HISTORY OF AGRICULTURE

In this virgin wilderness of the Finger Lakes and westward, in 1790, civilized man found precarious foothold at three places only—Fort Niagara, Kanadesaga, and the settlement of the Universal Friend at Dresden. There were west of Kanadesaga, now Geneva, less than a thousand white people in 1790; but through the efforts of the large land owners, 12,000 settlers had taken farms by 1795, chiefly on the Pulteney Purchase under the extraordinarily good management of Captain Williamson. By 1810, the population had increased to nearly 300,000. Along every waterway and Indian trail in central and western New York, daylight resounded with the crack of trees and night was illumined by burning log-heaps, prodded and chinked by satan-like figures clearing the hindering forest from the land for which they hungered. At no time in the New World's past had there been so great a surge of humanity to acquire land. It was like the spring-time pulse of life in animal and plant creation—life at its height, assertive, indomitable, irresistible.

First came the hunters and trappers; then the land sharks and surveyors; lastly settlers seeking homes and adventurers after the unknown and excitement to satisfy their restless spirits. Second and third waves of emigrants brought with them stores, churches, and schools, and a region with these marks of civilization every dozen miles was no longer a "new country." When a man had rid a patch of forest of all its mute growing things, had broken the loam of centuries with his hoe, had taken the fresh turned earth in his hand to get the smell of it, he had made a home.

The settlement of western New York was greatly delayed by the fear of Indians and British. After the ignominious defeat of Generals St. Clair and Harmer in the Northwest Territory in 1793 by the Indians, assisted by British officers, a rout and massacre scarcely less disastrous than that of Braddock, the Six Nations became so arrogant and threatening as to drive out of western New York settlers who had already come and to prevent others from coming. Meanwhile, the British were still in the possession of forts at Niagara and Oswego, a source of continual irritation between Yankees and British. But General Wayne through his great victory at Maumee Rapids saved the day for the Americans, and the Six Nations made treaty with the whites



## MIGRATIONS

at Canandaigua in 1794, most memorable in that its provisions were never broken by reds or whites. This treaty terminated all fear of Indian uprisings in western New York. The British surrendered Niagara and Oswego in 1796.

Through the last decade of the eighteenth century and the first decade of the nineteenth, long processions of new settlers crept slowly over the blazed trails of almost impassable roads. Often they must bivouac at night in the woods. One settler wrote, "Though our beds had not been made up since the creation of the world, they were not hard enough to prevent our sleeping." The first task was to rebuild Indian trails into passable roads; then rivers and streams must be dammed to furnish power for saw-mills, grist-mills, and tanneries. Soon school houses and churches dotted corners at occasional cross-roads. The log cabins quickly rolled up at settlements had next to be made into more livable houses. As soon as a bit of land was cleared domestic animals were driven in to multiply as fast as nature could be driven. In the spring when rivers had thawed and freshets brought high water, settlers came by boat and scows, rowing and poling up the Mohawk, taking the portage to Oneida Lake, thence the three rivers westward if the destination were the Genesee country, and the starting place New England or eastern New York. Fortunate indeed was New York in its marvelous waterways. The waterways of colonial New York helped greatly to win the French and Indian War and the Revolution. Now they enabled American settlers to build homes in the lands taken from the French, English, and Indians. Pennsylvanians came up the Susquehanna and its branches. Arrived at a chosen spot, two immediate necessities faced an emigrant—he must buy land on the best terms he could get from the large land speculators and he must find food to tide him over until land could be cleared.

The first dwelling places were framed of low, solid, rugged walls of grey logs, chinked with moss and clay. The sky was shut out with over-hanging roofs of home-made shakes rived from blocks of pine or hemlock, through which rain and snow sifted if there were but the slightest wind. The owner of a log house could put his hands on the roof edgings of his dwelling place and must

stoop bodily, if not in spirit, to enter. If a sawmill had been built, a few frame houses of rough unpainted lumber might be run up by those who had a little money—huge boxes set in a rectangular clearing, from which every vestige of the incumbering forest had been removed, buildings which later degenerated into piggeries and outhouses. At one end of the log cabin was a stone chimney out of which an open fireplace poured volumes of smoke. These cabins usually contained but a single living room, with earthen or board floor. In all of this wilderness country there was at the time no window of glass, except perhaps in the house of the land speculator or his agent. The living room was lighted with an opening two feet square cut through the logs. In winter, or when the weather was bad, this opening was covered with greased brown paper, which admitted a little light; in summer, it was wide open to flies, mosquitoes, and other insect pests. The door of the cabin was made of slabs cut from pine, hewed smoothly with the woodsmen's axe. The hinges of the door were made of wood and swung on wooden pins. The house was built without nails or metal. The settlers sat on benches, ate at a slab table, and for most part had wooden trenchers for dishes. Pegs and deers' horns held surplus clothing and the woodsman's rifle with powder-horn and bullet pouch. A ladder led to a garret in which were the low bedsteads of the family, or perhaps there was a bed in the main room, sometimes curtained off, more often not.

Outside, against the black background of the forest wall, there might be a shack or two for the farm animals. In time there arose cone-shaped stacks of hay and straw, which, when washed and bleached with rain and snow, resembled enormous deserted beehives, save that they were indented by dark caverns made by animals which through the winter had wallowed about the stack for periodic mouthfuls of straw. The way to the new country was long and almost unendurably difficult—the goal was a lonely cabin in the solitude of a black, silent forest. Solitary, unvarying, forlorn, God-forsaken!

Throughout the whole of the vast domain of central and western New York trees crashed to the axes of settlers. When sufficient timber had been cut, the slashings were burned; dark spires of smoke ascended from the windrows of the crackling,





## TWO TYPES OF LOG HOUSES

The upper one is the log cabin of Mary Jemison's daughter Betsy







## MIGRATIONS

sizzling underbrush filling the air with pungent odor of half-seasoned timber. In the cool of the evening and until late at night, grimy, fire-smirched men moved about with handspikes of ash or iron-wood rolling and chinking together half-burned logs in the live coals of the out-of-doors crematories—seemingly creatures from Hades who had strayed into this region of green growth, pure air, and blue sky. None would suspect that these workers in fire and smoke had anything in common with tillers of the soil, growers of grain and succulent vegetables. Fire, set loose, was the quickest and most efficient means of destroying the forest growth. "Deadenins," in which trees had been killed by girdling, when burned made bits of frontier hells.

Everywhere settlers were slaving. They drudged long hours continuously, heart and soul in routine work, and then must spurt with might and main at some special task. Existence was a dream, a wretched nightmare. Every day ended with muscles aching with the pains of labor. Only the man who subdues a piece of the forest knows the pains of such labor. There are stages in physical exhaustion. "I am tired," is about the commonest human expression—meaningless words when applied to labor on the land unless the person using them has swung an axe, drawn a saw, rolled logs, pulled stumps, grubbed underbrush, or guided a plow in unbroken soil until arms, legs, back, sides, and shoulders ache with acute pain at every move until the worker becomes unconsciously an automaton of toil. Only the valorous, the iron-willed, the man with muscles corded with steel, can break ground in a forest.

How did pioneer women bear themselves in surroundings so dreary and toil so arduous? They complained that the daytime silence of the world about them added tortures to spirits already tried by the monotony and solitude of the new life. In winter there were no sounds throughout the day except the pistol-like reports of trees cracking with frost in the neighboring forest and the ringing sound of the axe, not even the whisper of leaves, the dropping of fruits, or the flutter of birds. Nature seemed to be in an everlasting sleep and the silence oppressed women-folk, snowed in and half starved for four or five months. The noises of the night were scarcely less trying than the silence of the day to

## A HISTORY OF AGRICULTURE

ears attuned to the subtler sounds in the silence of the forest. Wolves, attracted by the livestock, howled about the cabins; there were the screams of the wild-cat, lynx, and an occasional panther in a neighboring swamp; and the lesser noises of bears, porcupines, coons, and other night prowlers on errands of gastronomy or progeneration. The gales and piercing cold that swept down from Canada and tales of men lost and frozen in the woods added to the horrors of the long winter for surely time must have been slow.

"There are no church bells," the young wife of a New England settler complained on her first Sunday in a cabin which her husband had built the winter before. Poor woman! Before the end of the year she had buried her first child in a grave beside the cabin which she "covered with a mat of starry mosses." The sheltered nook seems then to have become her oratory for she "went there daily to breathe the peace of the Lord."

For a few years a settler had a hard time of it; but when he had cleared a few acres to furnish corn, beans, and squash, the staple products until grist-mills were at hand, aided by hunting, for every settler knew how to use a gun, he made out very well. Where there were rivers and lakes—and where are there not in New York—fish, fresh and smoked, supplied his larder for months. A great deprivation in the earliest years was the lack of salt. Until the salt springs at Salina were developed and transportation was easier, salt brought fabulous prices and most settlers had to do without it. Sustenance was not difficult but the sameness and solitude of life in the forest must have been almost insufferable, especially if there were no domestic hearth and a man must live alone. But most settlers, thrifty or not, took unto themselves wives; often through desire for family life trappers and hunters married into the Indian tribes and half-breeds were common in all the old settlements. Settlers multiplied apace through marriage. Travelers through the region almost universally speak of large families, 10, 12, or more offspring, running about summer and winter, with bare heads and bare feet, living on mush, wild meats, and fish. Under these conditions, weak offspring died; out



## MIGRATIONS

of the strong survivors of this rugged nursing sprang the hardy race that built the State. No wonder if the mothers of these big families died young. "Solitary indeed was the old Puritan who did not have at least two wives lying beside him in the churchyard."

In not a few of the settlements actual famine existed. In 1794, in the region between Owego and Elmira, Tioga and Chemung counties, there was much suffering from lack of food. For two months the inhabitants were almost entirely without bread or other food to take its place, the shortage occurring just before harvest. Destitution resulted from the great number of new settlers who came in during the winter and early spring, so that there was not food enough to go round. During this time of starvation, accounts say people were unable to work, irresolute in what they undertook, and emaciated and gaunt in appearance. As a substitute for more substantial food, the settlers used the roots of plants, the tender bark of trees, and the leaves of trees, which they gathered, boiled and ate ravenously. As soon as wheat and rye were in milk, the grains were seized upon and by drying until some consistency was acquired they could be pounded into a sort of meal out of which mush was made. The process was tedious and was of course attended with great waste of grain. During this time of want, no one is reported to have died of hunger, but two young men went to their graves in consequence of eating to excess mush made from green rye.

Judge William Cooper, father of James Fenimore Cooper, Cooperstown, Otsego county, New York, a man of enterprise, good heart, and great wealth for his days, did much to relieve the distress of settlers on the headwaters of the eastern branch of the Susquehanna. He gives the following account of one part of his work of relief:

"In the Winter preceding the Summer of 1789, grain rose in Albany to a price before unknown. The demand swept all the granaries of the Mohawk country. The number of beginners who depended upon it for their bread greatly aggravated the evil, and

## A HISTORY OF AGRICULTURE

a famine ensued which will never be forgotten by those who, though now in the enjoyment of ease and comfort, were then afflicted with the cruelest of wants.

"In the month of April, I arrived among them with several loads of provisions, destined for my own use and that of the laborers I had brought with me for certain necessary operations; but in a few days all was gone, and there remained not one pound of salt meat, nor a single biscuit. Many were reduced to such distress as to live upon the root of wild leeks; some more fortunate lived upon milk, whilst others supported nature by drinking a syrup made of maple sugar and water. The quantity of leeks they ate had such an effect upon their breath that they could be smelled at many paces distant, and when they came together it was like cattle that had been pastured in a garlic field. A man of the name of Beets mistaking some poisonous herb for a leek, ate it, and died in consequence. Judge of my feelings at this epoch, with 200 families about me and not a morsel of bread.

"A singular event seemed sent by a good Providence to our relief; it was reported to me that unusual shoals of fish were seen moving in the clear waters of the Susquehanna. I went, and was surprised to find that they were herrings. We made something like a small net, by the interweaving of twigs, and by this rude and simple contrivance we were able to take them in thousands. In less than ten days each family had an ample supply, with plenty of salt. I also obtained from the Legislature, then in session, 1,700 bushels of corn. This we packed on horses' backs, and on our arrival made a distribution among the families in proportion to the number of individuals of which each was composed."

The winter following the summer freezes of 1816, coming closely after the devastating war of 1812 in which every able-bodied man in western New York served, was the most distressing period in the agricultural history of the region. All of the season's crops had been singed and blackened by frost. The summer's work had gone for naught, and the settlers began the winter with scant and undernourishing food, women as well as the men overworked, and children wept for food. With so many weary, weary heart-aches, in a country that must have seemed grim to agriculture, livelihood wrought with so great suffering, one wonders if life seemed worth living.



## MIGRATIONS

There was much suffering in the winter. The houses built of illy-seasoned logs or lumber, floored with planks, if floored at all, let in the stinging cold of winter through cracks and chinks, and rifts of snow sifted through in every winter gale. Beds were snow-covered in upper rooms and bed coverings were fringed with congealed breath. Night after night food, water, and moisture-soaked clothing and boots froze solidly. Bread and meat had to be thawed at the fireplace before they could be cut. The freshly cut timber in a house cracked in zero weather like rifle shots from the cold. The sick and disabled suffered terribly under winter conditions. Chillblains were universal, no one was spared, feet and hands long and often exposed to cold became swollen and inflamed with almost unendurable itching and pain and sometimes ulceration. The ailment was slight and never dangerous but so woefully uncomfortable that school children and guests might take off shoes and stockings without impropriety to attend to chill-blained feet.

These were busy days for Death; he lost no opportunities to attack the poorly-housed and poorly-fed settlers. Of the thousand weapons he chose, there were two which he used most often. In the dark winter months when physical vitality was low and mental resistance least the death-rate from contagious diseases was high, and in late summer dysentery took an enormous toll. Death did not pick and choose but mowed down old and young alike. Dr. Timothy Dwight, who visited Batavia in 1804, wrote "in the season when we were on the ground, so many persons were ill with the diseases common to this region, that those who remained well were scarcely able to nurse the sick." A Doctor Coventry, who came to Geneva during the terrible dysentery epidemic of 1795, says that in Geneva, small as it was then, "there were three or four dead at the same time." Another time he writes, "Of the inhabitants, only one, a woman, was strong enough to be about, and she like a ministering angel went from house to house giving out drinks of cold water, the only means of relief the community afforded." All of the early travelers give harrowing accounts of the dreaded "Genesee fever," "ague," and "chills and fever," all no doubt malarial ailments.

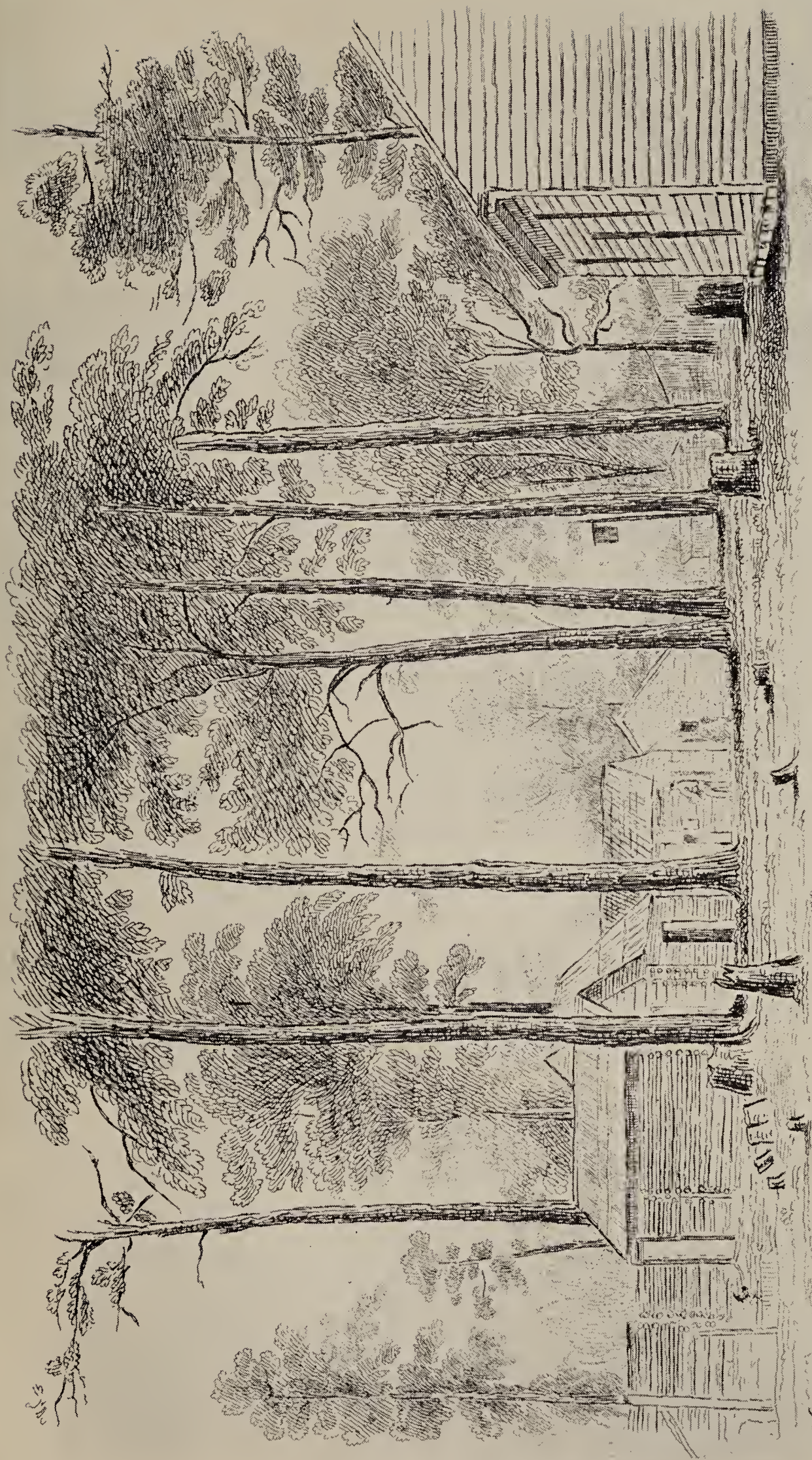
## A HISTORY OF AGRICULTURE

The epidemics of malaria and fevers in western New York were so serious that the name "Genesee country" became associated in the minds of those living on the Atlantic seaboard with sickness and death. It seemed to relatives and friends remaining in the east that this western region was but a "valley of bones," a premature burying place for those who attempted to settle in the fertile territory being opened. Letters to and from the early settlers and biographical sketches of them almost invariably show a feeling of gloom in contemplating the danger incident to health in these western settlements. Notwithstanding the glorious descriptions of the beauty and fertility of the land, it was difficult to induce timid easterners to migrate.

In the reminiscences, autobiographic sketches, and travelers' reports of which there are a thousand sources, a common mode of expression is by question and answer, as for example: "How do you like the Genesee country?" Here are some of the answers: "It's a wonderful country, once we get the trees down. It'll make good farms." "The soil is the richest in the world and grows the best wheat." "The winters are bad and last summer we lost nearly every crop in the dry weather." "The flies and mosquitoes are hell—we'll get used to such troubles once we get a good start." "It's a fine free life if one has health and no debts—I like to be my own boss—best life in the world." "The land is good but there's too much sickness. I've lost my wife and two children with the Genesee fever." After the summer of 1816, when there was a frost every month in the summer, one man stormed, his wife weeping, a frost having wrought havoc the night before, "Damn such a country. The frost killed the potatoes as they came through the ground. It caught the wheat in the milk. Now it has frozen the corn in the silk. Damn the Genesee country!"

Until well after the Revolution, villages had hardly begun to take shape except in occasional cases, chiefly county seats. Places were known after the first settler, a mill, a ford, a bridge, or some feature of the land. Thus, Elmira was Catharine's Town, after Catharine Montour, a French half-breed; Ithaca, the Flats; Syracuse, Bogardus Corners; Boonville, Boon's Upper Settlement; Seneca Falls from the rapids in the Seneca River; and so on with





AN EMBRYO TOWN  
From an etching by Basil Hall, 1829







## MIGRATIONS

a thousand suffixes of "ville," "port," "mills," "corners," "harbor," and "town" to commemorate in most cases the name of the first prominent settler. The changing circumstances of five generations have obliterated first names of hamlets, now villages and cities, from maps and memory alike in perhaps a quarter of the urban names on present maps.

In 1790, western New York, from a meridian beginning at the 82d milestone on the Pennsylvania line, a meridian running northward through Seneca Lake to Lake Ontario, was one huge county, Ontario county, out of which was carved the 12 counties now comprising western New York. One sees at a glance that this rush of people into central and western New York entailed economic consequences that for a long time helped to make living conditions most difficult. The rapidity of settlement and the vastness of the area in which the farms were located made it impossible for the State to do much for the welfare of the inhabitants in the new settlements. Heavy though the taxes were and heartily as the people responded in paying them, and in contributing labor and funds, yet the means did not suffice to build roads, construct bridges, make the rivers navigable, establish courts, start schools, and do well in general the many things a State should do to care for its citizens or to enable them to carry on trade and commerce successfully.

There were as yet no markets in the cities of the east for western farm products, because as yet there were neither roads nor continuous waterways. And then, as now, large cities were looked upon as the homes of capitalists and money-squeezers where the farmer was likely to be cheated in making sales. For many years the best place to market farm and forest products from western New York was Baltimore, reached by way of the Susquehanna when the river was high in the spring and early summer. On the other hand, there were closer ties between the region and Albany, the capital, and New York and Philadelphia where the large land offices from which farms had been purchased were situated. But produce reached these three metropolises only by making long portages if sent by water or over roads so unspeakably bad that there was little profit left after transportation was accomplished.

## A HISTORY OF AGRICULTURE

The owners of the great tracts of land west of the Hudson, more particularly on the Holland Purchase, the Pulteney Estate, and the Morris Tract, all in the Genesee country, made very comprehensive plans to encourage agriculture by establishing towns or cities for inland trade and manufactures. Since there were no canals, nor well-built roads, in nearly every case the town was to be built on natural waterways. Bath, on the Susquehanna, was an example; Geneva, on Seneca Lake, another; Sodus, on Lake Ontario, was a third. These were on the Pulteney Estate. The Holland Purchase dotted its towns here and there throughout its whole great domain. Mount Morris, Batavia, Mayville, are towns planned by the owners of the Holland Purchase. These town and city builders thought they had great treasures in the natural resources of their land and they planned new settlements on an extensive scale. Modern speculators could obtain many suggestions from land boomers of 150 years ago.

Let us see, by taking an example, what an agricultural settlement in western New York was supposed to be. In 1794, Tench Coxe of Philadelphia drew up an elaborate plan for an agricultural settlement on the Susquehanna River, either in Pennsylvania or in New York. Coxe deserves to be called the father of promotion schemes for commerce and agriculture in North America. North and South, he tried to start the wheels of manufacturing, commerce, and agriculture by one or another cooperative society for furthering the ends in mind. Mostly, he failed, but sometimes he succeeded. Coxe, by the way, was one of the prominent economists of his times and Assistant Secretary of the Treasury in 1792. First a Whig, then a Tory, then again a Whig, and at one time Supervisor of the Revenue under Hamilton, he was, in spite of his many political adventures, a man whom all respected.

Coxe's plan called for the expenditure of \$500,000, as follows:

2,000 acres of land and water rights at \$15.00 per	
acre .....	\$30,000
26,000 building lots,	
510 stone and brick houses of the value of \$300 each..	153,000
220 stone and brick houses, \$500 each.....	110,000
50 stone and brick houses, \$800 each.....	40,000



# MIGRATIONS

10	stone and brick houses, \$2,000 each.....	20,000
4	stone and brick houses, \$650 each.....	2,600
2	hemp mills, \$1,250 each.....	2,500
1	flax mill, \$800.....	800
1	mill of 500 spindles for spinning flax, hemp, and combed wool.....	5,000
1	rope walk.....	2,000
2	smaller rope walks, \$1,000 each.....	2,000
2	tan yards, \$1,500 each.....	3,000
2	smaller tan yards.....	1,500
1	paper mill.....	1,500
1	flax-seed, hemp-seed, and rape-seed oil mill.....	1,500
1	grist mill.....	2,000
2	bake houses, \$500 each.....	1,000
2	slitting and rolling mills, \$5,000 each.....	10,000
1	steel furnace.....	3,000
1	soap boiler's and tallow chandler's shop.....	500
1	malt house.....	2,000
1	brewery .....	4,000
10	grain and fruit distilleries, \$1,250 each.....	12,500
1	printer's office for the English language.....	500
1	ditto for the German language.....	300
6	blacksmith and nailery shops, \$500 each.....	3,000
2	cooper shops, \$250 each.....	500
1	cedar cooper shop.....	200
4	hatter shops, at \$400 each.....	1,600
1	bleach yard and house.....	1,000
2	fulling mills, \$1,250 each.....	2,500
2	potteries, \$500 each.....	1,000
4	wheelwright and chair makers' shops (2 at \$500 and 2 at \$400 each).....	1,800
2	coppersmiths' shops, \$450 each.....	900
2	potash works, 1 \$300, the other \$200.....	500
1	brass founder shop.....	600
2	painters' shops, 1 \$500, the other \$300.....	800
2	turners' shops, 1 \$500, the other \$300.....	800
2	water forges, \$1,500 each.....	3,000
4	tilt-hammer forges, \$1,000 each.....	4,000
1	tobacco and snuff manufacture.....	800
2	boring and grinding mills for guns, scythes, sickles, &c., \$1,000 each.....	2,000

## A HISTORY OF AGRICULTURE

2 skin-dressers' shops, \$500 each.....	1,000
4 lumber yards on the river, \$25 each.....	100
2 gun smiths' shops, 1 \$500, the other \$300.....	800
2 boat builders' shops and sheds, 1 \$400, the other \$300 .....	700
4 school houses, 2 for each sex, 2 German, 2 English, at \$300 each.....	1,200
4 houses for tutors, \$500 each.....	2,000
1 church, for all denominations.....	4,000
2 taverns, 1 \$4,000, the other \$3,000.....	7,000
2 stables, for 30 horses and 10 carriages, at \$1,000..	2,000
100 buildings, \$250 each, half with and half without cellars for shops, stables, &c.....	25,000
1 large scale house to weigh loaded wagons.....	500
1 scale house to weigh hogsheads and things of less than 1 ton weight.....	100
1 sail-cloth manufactory.....	5,000
1 plumber's shop.....	300
2 brick kilns, yards and houses.....	1,600
1 starch works and dwelling house.....	800
1 library of books relative to useful arts and manufactures .....	3,000
1 parchment manufactory.....	500
1 glue manufactory.....	500
1 pump maker's shed and yard.....	100
Charges of the superintendence of the execution, at 1 per cent.....	5,000

Halsey has given in a chapter on economic facts in his *The Old New York Frontier* the prices paid for land, farm products, goods, and labor. A few extracts from this chapter shed light on the economic conditions of the times in Delaware, Otsego, and Schoharie counties:

"Solomon Martin in 1797, was charged \$25.00 for two tons of hay, and in 1803 \$60.00 for a yoke of oxen.

"Sherman Page in 1806 was charged \$7.60 for 1,010 feet of panel boards; Amos Bidwell in 1798, two shillings two pence for five and three-fourths pounds of beef; Hugh Thompson in 1797, two shillings for 25 pumpkins; Daniel Mack in 1793, four shill-



## MIGRATIONS

ings for one bushel of corn; and six shillings for two bushels of wheat; and Daniel Bissill in 1793, 14 shillings for 400 brick and 16 shillings for four days of work building a chimney.

"The cash sum of \$24.00 was paid in 1802 to Sluman Bartlett for a barrel of whiskey.

"Eliphalet Smith was to pay \$1.50 for making a pair of breeches; Joseph Merritt in 1797 was to pay six shillings for making a coat; Ephraim Little in 1798 was paid four shillings for making two caps.

"In 1806 Benjamin Beech was to pay two shillings, six pence 'for one day's cradeling.'

"In 1798, for 'boarding Betsy Adams on Mrs. Adams' account, six weeks,' the charge was one pound six shillings.

"In 1814, credit was entered for cash received of Uriah Hanford for 'fines imposed for profain swearing \$2.25.'

"In 1822, a charge was made of \$2.00 for 'writing and putting up notices against drunkards.'

Going to another part of the State, Genesee county, at about the same time, prices ran as follows according to a list published in 1804 by Robert Munroe:

"Wheat from 62 cents to \$1 per bushel; corn, from 30 to 50 cents a bushel; hay, from \$6 to \$12 a ton; butter and cheese, from 10 to 16 cents a pound; a yoke of oxen, from \$50 to \$80; milch cows, \$16 to \$25; a pair of good working horses, \$100 to \$125; sheep, \$2 to \$4; pork, fresh killed in winter, \$4 to \$6, a 100 lb.—salted in Spring \$8 to \$10; whiskey, 60 to 75 cents a gallon; salt, \$1 a bushel, weighing 56 lbs.; field ashes, 4 to 9 cents a bushel; 600 bushels may be manufactured into a ton of pot or pearl ashes, which has been sold at market at \$1.25 to \$1.50; and some persons by saving their ashes, or by manufacturing them, have nearly cleared the cost of improving land. The wages of a laborer, \$10 to \$15 a month and board; a suit of clothes, made from \$4 to \$5; a pair of shoes, \$1.75 to \$2.50. Store goods are sold at very moderate prices, the expense of carriage from New York or Albany being about \$2 a hundred weight."

After a settler had purchased his land, the capital required to start farming was small indeed. A man with his neighbors could

## A HISTORY OF AGRICULTURE

put up a log house 20 feet square, living room below and a sleeping room above, almost without cost. A log house with two rooms below and two above could be built by hired labor at a cost of less than \$100.00. Every settler must have a yoke of oxen, which at the close of the Revolutionary War would have cost from \$60.00 to \$90.00; a cow would have cost less, \$15.00 or \$20.00; the farming tools required, including an ox cart, could be purchased for \$50.00. A man who had a capital of \$150.00 after his land was purchased was indeed fortunate, and anywhere in New York would have been considered a well-to-do settler. Not a few families began life, after the farm had been purchased, without capital of any kind and depended for a few years on exchanging hand labor for work with oxen and for the necessities of life.

It was but a year's work for a good woodsman to chop, log, burn, plow, and sow 10 acres of forest land. For the heavier work in clearing, such as logging, the settler called on his neighbors for aid, swapping work in return. One yoke of oxen very often had to suffice for three or four farms. In logging, a principle of reciprocity was practiced which gave rise to the familiar expression in governmental legislation of "log-rolling," when a dozen or more neighbors might be called in. Now the settler in clearing his 10 acres could make a ton of potash which would sell for \$200.00. His first crop of wheat on a 10-acre lot could be expected to give him 150 bushels of merchantable grain which would bring \$300.00 in the Albany or Catskill market. So that when all went well the settler had a very handsome return from potash and crops, especially when one considers that as a day laborer he would have to be content to toil 12 or 15 hours a day for \$8.00 or \$10.00 a month. The settler in the forests of New York was in much better case than his descendants a generation or two later who plowed the virgin prairies of the middle west, had no potash to sell, no forest products to dispose of, and could obtain but 50 cents or thereabouts for wheat and half that amount for a bushel of corn, if indeed the corn was salable.

Throughout the ages men have sung the praises of the plow, the sickle, and the threshing floor; but the axe deserves most admiration and commendation as the tool of tools in the states of



## MIGRATIONS

America which were won from the wilderness. No other implement used by pioneers in forest regions can compare in usefulness to the keen-edged, shining, trenchant American axe, skilfully hung on its helve of American hickory, and efficiently swung by corneous-handed American sons of toil in carving farms from the American wilderness. In the great migration that followed the Revolution, the axe opened up perhaps a million acres to the sun from the shade of New York's virgin forests for the use of husbandmen whose culture of the land so acquired gave abundance and prosperity to a princely domain. During the same period, a million square miles of wilderness succumbed to the American axe in the country east of the Mississippi.

## CHAPTER VI

### AGRICULTURAL ORGANIZATIONS

**A** LONG and profitless day for American agriculture ended with the close of the Revolution. The restrictions imposed on the colonies by England; the infamous tax acts; royal governors who would do little or nothing to encourage agriculture; and the pernicious practice of granting huge tracts of land to favored individuals to whom rents must be paid, had from the start kept and now left agriculture in adverse circumstances. Independence did away with most of these impediments and brought the dawn of a better day. Besides, it was the beginning of a new span in civilization—the American Revolution, the French Revolution, Independence, Speculation, Inventions. These meant new turns in men's minds everywhere. Organization for cooperation and mutual helpfulness was one of the manifestations of the new order of things as they affected agriculture. In nearly every colony agricultural societies sprang up in the last decade of the eighteenth century.

No doubt careful search would discover a considerable number of agricultural organizations in provincial New York. Men had to organize for mutual helpfulness in pioneer days, and they probably proceeded about the matter in much the same way that farmers do now. In colonial documents there are several accounts of farmers banded together on Long Island before 1700. Tenants collectively rented town commons and several of the smaller islands for grazing stock. Trustees were chosen, annual meetings were held, and several of these organizations kept together many years. The earliest agricultural exhibit in the Province was a cattle fair held October 15, 1641, 16 years after the settlement of Manhattan Island. An act was passed in the Provincial Assembly November 11, 1692, entitled "An act for settling fairs and markets in each respective city and county throughout the Province." This act remained in force until repealed by the State Legislature, March 12, 1788. Several special acts were passed



## AGRICULTURAL ORGANIZATIONS

prior to the Revolution for fairs in Albany and what were then Cumberland and Tryon counties. These fairs, however, were markets in which no inducement to competition existed other than comparative excellence to be judged by the purchaser. All of these early market-fairs were held semi-annually on fixed dates and under the direction of governors and rulers appointed by the Provincial Government. Expenses were paid by a toll of 1 per cent, half from the buyer and half from the seller.

There was in early colonial days an interesting cooperative organization which owned the neck of land extending eastward from Manhasset Bay, Long Island. The first English name for this bit of territory was "Cow Neck." It was originally enclosed from Hempstead Harbor by a fence which also separated it from Great Neck. A cooperative organization, in early colonial days, agreed that a member was entitled to put as many cattle on the neck of land as he would build standing gates or panels of fence. The number of cooperators in 1658 was 60, and the number of panels of fence 526. In 1674 these rights were called gate-rights.

The first agricultural society in the State to take the form, objects, and method of procedure of the agricultural societies now in vogue in New York and in every other state in the Union was the Society for the Promotion of Agriculture, Arts, and Manufactures. It was organized in Albany, February 26, 1791, and was incorporated March 12, 1792. The names of the founders of this first society make a thrilling page in the annals of the agriculture of New York, as indeed they would in the annals of the history of the State and Nation. The list includes: John Jay, signer of the Declaration, author of the State's constitution, second Governor, first Chief Justice of the United States Supreme Court; Robert R. Livingston, Chancellor of the State, Minister to France, introducer of Merino sheep, first President of this Society; General George Clinton, Army Commander under Washington, first Governor of the State, Vice-president of the United States; John Sloss Hobart, eminent jurist, United States Senator, one of the committee to draft the first constitution of New York; Philip Van Cortland, general, congressman, wealthy land owner, and farmer; Edward Livingston, patriot, statesman; James Duane,

A HISTORY OF AGRICULTURE  
TRANSACTIONS  
OF THE  
SOCIETY,  
INSTITUTED IN THE  
STATE OF NEW-YORK,  
FOR THE PROMOTION OF  
AGRICULTURE, ARTS,  
AND  
MANUFACTURES.

---

PART I.

---

Published by Order of the Society.

---

NEW-YORK:—PRINTED BY CHILDS AND SWAINE.

M,DCC,XCII.

TITLE PAGE OF THE TRANSACTIONS OF THE SOCIETY OF THE  
STATE OF NEW YORK FOR THE PROMOTION OF AGRICUL-  
TURE, ARTS, AND MANUFACTURES



## AGRICULTURAL ORGANIZATIONS

patriot, statesman, jurist, large land holder, farmer; Simeon De Witt, soldier, long Surveyor General of New York, Chancellor in the University of New York; John Delafield, patron saint of agriculture in western New York; General Horatio Gates, commander in the capture of Burgoyne; Dr. Samuel Latham Mitchill, chemist, botanist, Surgeon General, Professor of History, Chemistry, and Agriculture in Columbia University, congressman, senator, leading scientist in the new world, first Secretary of this Society. Men of hardly less note were Elkanah Watson, projector of the Erie Canal and founder of agricultural fairs; Dr. Hosack, Professor of Botany in Columbia College and second only to Dr. Mitchill among scientists in the new country. Of the 149 names on the first membership roll of the Society, there was scarcely one devoid of note in the State and Nation.

The promoters of this Society sent a circular letter "to the friends and promoters of rural economy in New York State" in which it was stated that "the founders have taken into fellowship a number of respectable characters throughout the State from whose talents and diligence they have much to expect." Truly a modest statement! At no other time in the history of agriculture has there been an assemblage of so many "respectable characters" to discuss agricultural problems.

Some of the topics discussed in the 13 meetings held by this Society were: "Introduction of Plants and Animals from Foreign Places," "Experiments and Observations on Lucern," "Manuring Land with Seaweed," "Improving Poor Land by Sowing Red Clover Seed," "Perennial Grasses," "Cast Iron Plow Shares," "Observations on Constructing a Greenhouse," "The Decay of Apple Trees," "A Treatise on Silk Worms," "Feeding Hogs to Advantage," "Raising Crops of Corn by Means of Street Manure," "Cultivation of the Poppy Plant to Procure Opium," "Weaning Calves," "Vetches," "Smut of Wheat," "Observations on Canker Worms," "Preserving and Propagating Trees," "Thoughts on Lime and Gypsum," "Diseases of Fruit Trees," "Advantages of Domesticating the Elk and the Moose," "Improvements of the Steam Engine," "A Method of Distilling Ardent Spirits from Potatoes," "The Construction of Fair Places," "Catching Porpoises and Manufacturing Leather from

## A HISTORY OF AGRICULTURE

Their Skins," "Sugar from the Maple," "Introducing the Buffalo as a Draft Horse," "Turning Loose the Chamois of the Alps in Our Mountains." All fields of agriculture were explored.

Besides essays, there were at each meeting one or two orations, somewhat, it is true, in the style of Demosthenes and Cicero, but by men who had the gift of speech and who vied in making the Society's hall ring with eloquence, for most part oracular voices proclaiming a glorious future for the new-born nation. The Society published four most excellent reports.

The Society for the Promotion of Agriculture, Arts, and Manufactures was by no means the first of such organizations in the New World. The American Philosophical Society had been founded in 1744 by Benjamin Franklin, and while chiefly devoted to the interests of what then went as science, yet it published many articles on agricultural subjects. Out of this Society came The Philadelphia Society for Promoting Agriculture in 1785. Its object was to promote "a greater increase of the products of the land within the American state," and for this purpose the Society printed agricultural essays, memoirs, and offered prizes. The second farmers' organization seems to have been started in New Jersey in 1781 under the name The New Jersey Society for Promoting Agriculture, Commerce, and Arts. How long this Society lived, what it accomplished, and who its members were does not appear. The South Carolina Society for Promoting and Improving Agriculture and Other Rural Concerns was organized in Charleston in 1785, and 10 years later became the Agricultural Society of South Carolina. It is still in existence, and is therefore the oldest of the agricultural societies in the country to have had continuous life. This South Carolina Society had nearly as distinguished a list of members and officers as the New York organization. Among its 12 first officers were a Chief Justice of the United States, a senator and four members of Congress, four Governors of South Carolina, and a signer of the Declaration of Independence. To Maine belongs the honor of having the fourth agricultural society. One Charles Vaughan formed an agricultural organization at Hallowell, Maine (then part of Massachusetts), in 1787. This seems to have become the Kennebec Agricultural Society in 1807. This organization merits



## AGRICULTURAL ORGANIZATIONS

special notice because in addition to meetings it maintained gardens, nurseries, orchards, and farms and distributed stock, seeds, plants, and conducted correspondence with farmers—radical departures from the agricultural organizations in other parts of the country.

The New York organization, then, becomes fifth in the list of American agricultural societies, but the State has another claim of priority in the dissemination of agricultural knowledge by means of addresses, papers, and discussions. The first prospectus of Kings College (now Columbia College) was issued May 31, 1754, and includes husbandry and commerce as subjects to be taught. In 1755, the laws and orders adopted by the Governors of the College include "agriculture and merchandise" in the course of studies. Just how much this early attempt to spread the gospel of agriculture in Kings College amounted to is not known, but at any rate the effort did not wholly die out. On April 12, 1792, the New York Legislature granted funds to the trustees of Columbia College for additional professorships, one of which included natural history, chemistry, and agriculture. Samuel Latham Mitchill, one of the most distinguished scientists in America, was appointed to fill this chair. In an outline of the courses he intended to give, published the first year, were included a considerable number of topics relating to agriculture. Dr. Mitchill, it will be remembered, was secretary of the Society for the Promotion of Agriculture, Arts, and Manufactures, and was besides most active as a contributor to the New York Society. He read articles on grasses, canker worms, and various other subjects and delivered many addresses on agriculture at meetings in different parts of the State. Later he became a congressman from New York, and still later a senator, in which positions he acquired a wide acquaintance with leaders in agricultural affairs and became an honorary member of many agricultural societies. All in all, his aid and contributions to agriculture in New York seem to make him an outstanding figure in the history of agriculture in the State.

The second agricultural society in New York State was the Society for the Promotion of Useful Arts. The charter of the first

## A HISTORY OF AGRICULTURE

society expired by limitation May 1, 1804, but even before this date, April 2, 1804, its corporate powers were revived and modified under the new name. The reason for the change was that it had been found the business of the Society could not be well conducted at annual meetings of members. The new constitution provided for a standing council to carry on business. The title reads "Promotion of the Useful Arts," but it was explicitly stated in the constitution that "to make improvements in agriculture" was the chief aim of the Society. There were few names on the roll of this Society not found on that of the old. Robert R. Livingston was the President of the new, as he had been of the old organization, and Samuel L. Mitchill and Benjamin De Witt also held over as secretaries.

After having its charter once extended, the Society for the Promotion of Useful Arts was superseded in part by a Board of Agriculture, established by an act of the Legislature April 7, 1819, and in part was merged into the Albany Institute in 1829. This second society published four reports, each of which included selections of the addresses given at the annual meetings—good, but not up to the standard of those of the first organization. It would be hard to find at any time or anywhere papers of quite so high quality as those given at the meetings of the Society for the Promotion of Agriculture, Arts, and Manufactures. The Livingstons, the Clintons, John Jay, Duane, Mitchill, Hosack—it would be difficult to surpass them.

The high standing of the leaders of the Society, their diversified interests, broad mental attainments, character, and ability furnish a most amazing commentary on the turn for the better that agriculture was taking in the country. Never before had this industry awakened so much interest among public men. There never has been a time since when so many men so high in office in the State, the Nation, the Army, and a great university could have been persuaded to write papers, and to be present at the meetings of an agricultural society. Agriculture was, indeed, beginning to find itself. Independence was profoundly altering every phase of American life, none other greater than farm life.

The table of contents in the four volumes of *Proceedings* published by this Society shows a great diversity of subjects discussed.



## AGRICULTURAL ORGANIZATIONS

Some seem absurd, grotesque, wholly impractical, but speculation and casting about for new things were potent germs in the budding agriculture. We have been told over and over again by every one from presidents of the United States down to teachers of agriculture in high schools that diversification of crops is the foundation of stable and profitable agriculture. Well, here was the beginning of diversified agriculture in New York. To be sure, multiform soils and climates give great natural advantages for diversity, but the speculative spirit which gave urge to the distinguished members of the first agricultural society in New York to test every theory, to try every new crop, to use every new invention, built on nature's foundations and early established diversification in New York's agriculture.

Under various heads, soil conservation, although the phrase had not then been coined, was discussed. Rotation, drainage, fertilizers, and improved methods of cultivation found champions. As yet pasturage for stock was hardly thought of and since native grasses were not nutritious as winter foods, all livestock had had a hard time of it in winter. Now, new crops for cattle came under experimentation—timothy, clover, lucerne, vetches, rape, turnips, and rutabagas. Curiously enough, root crops for other than human foods were not generally grown until well along in the nineteenth century. Poppies for opium; madder and wood for dyes; the mulberry and silk-worms for silk; apricots, nectarines, and grapes, were introduced for trial. The Society prosecuted vigorously the task of finding what crops were best suited for the land. Insect pests and fungous diseases, with remedies for them, came in for attention they had never received before; ludicrous enough were the discussions of plant parasites in the light of present knowledge, but it was something to be aware of their presence and to desire to do something about them. Wine making, cider making, brewing and distilling were farm operations for which there were many recipes and methods. The Society at once became preeminent in fostering the introduction of pure-bred farm animals and poultry.

The Society for the Promotion of Useful Arts having passed out of existence, in part superseded by a Board of Agriculture as

## A HISTORY OF AGRICULTURE

has been stated, those who had been members of the two older organizations felt that there should be a new agricultural society. At a State convention held in Albany in 1832, the New York State Agricultural Society was founded. Its object, as stated by its founders, was "to improve the condition of agriculture, horticulture, and household arts." The leaders in the new Society had been prominent in one or the other of the two older ones, and were sons of the American Revolution—familiar and honored names to those who know the history of the State and the Nation. The first president was Le Ray de Chaumont and Jesse Buel was the first secretary. This is the Society, readers need to be reminded rather than informed, whose hundredth anniversary was celebrated in January, 1932, an organization whose contributions have been so great to the agriculture of the State that the Legislature has seen fit to pass an act and the Governor to sign it, authorizing the publication of this agricultural narrative in commemoration of its hundred years of service.

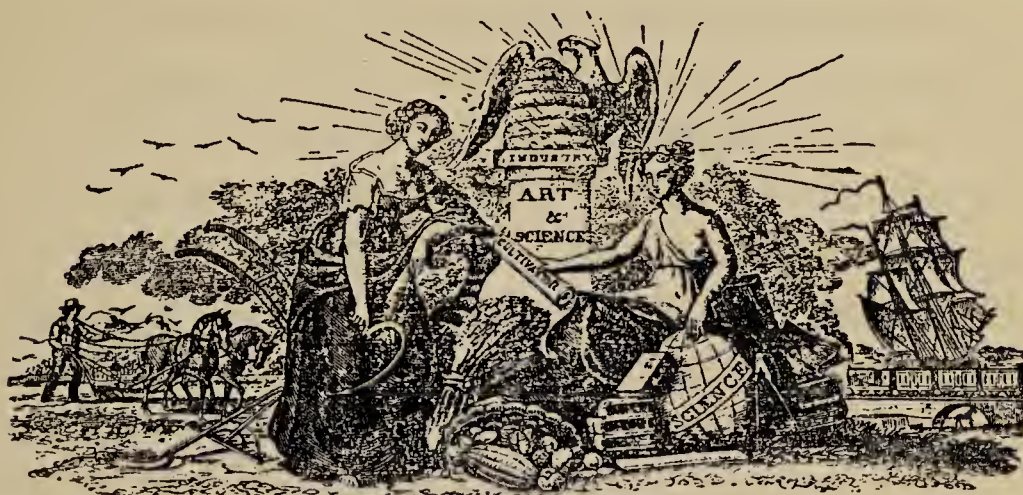
During the first 10 years of the life of this Society, no annual reports were issued and it is therefore impossible to name other members than those who held offices. In place of a report, the Society authorized in 1834 *The Cultivator*, edited by Jesse Buel, J. P. Beekman, and J. D. Wasson, to be the official mouthpiece of the organization. The early numbers of *The Cultivator* therefore are the source books from which much valuable information as to the activities of the Society can be gleaned. It must suffice now to say that the organization was early incorporated and that an appropriation was asked to support a State fair, but there seems to have been no grant of money nor does it appear that a fair was held. In an early meeting the establishment of an agricultural college was recommended. Unfortunately, De Chaumont, the able and enthusiastic president, was compelled to return to France and did not again come to this country to carry out his noteworthy ideas.

The results coming from the organization were not such as had been hoped for by the founders of the Society. The meetings were held annually; *The Cultivator* was well supported; many important papers were presented; and public opinion was enlightened, but the Society languished. In 1841, it was deter-



AGRICULTURAL ORGANIZATIONS  
**THE CULTIVATOR,**  
A MONTHLY PUBLICATION.

DESIGNED TO  
IMPROVE THE SOIL AND THE MIND.



PUBLISHED BY THE NEW-YORK STATE AGRICULTURAL SOCIETY,  
AND  
CONDUCTED BY J. BUEL, J. P. BEEKMAN AND J. D. WASSON.

---

**VOLUME I. SECOND EDITION.**

✂ In this second edition, we have retained all the matter that can now be of use to the reader—the receipt of moneys.  
Price Current, &c. being omitted.

---

ALBANY:  
FROM THE STEAM PRESS OF PACKARD, VAN BENTHUYSEN & Co.  
.....  
1838.

TITLE PAGE OF THE CULTIVATOR

mined to ask for a new charter and to prosecute more vigorously the designs of the organization. Accordingly, at the annual meeting of the Society, February 10, 1841, a new constitution was presented. The Legislature appropriated \$8,000 per annum for the term of five years “for the promotion of agriculture and household arts in the State.” The money to be distributed among the counties of the State, with the exception of \$700 which was given to the Society. This meager sum was used to hold a cattle show and fair in the village of Syracuse September 29 and 30,

## A HISTORY OF AGRICULTURE

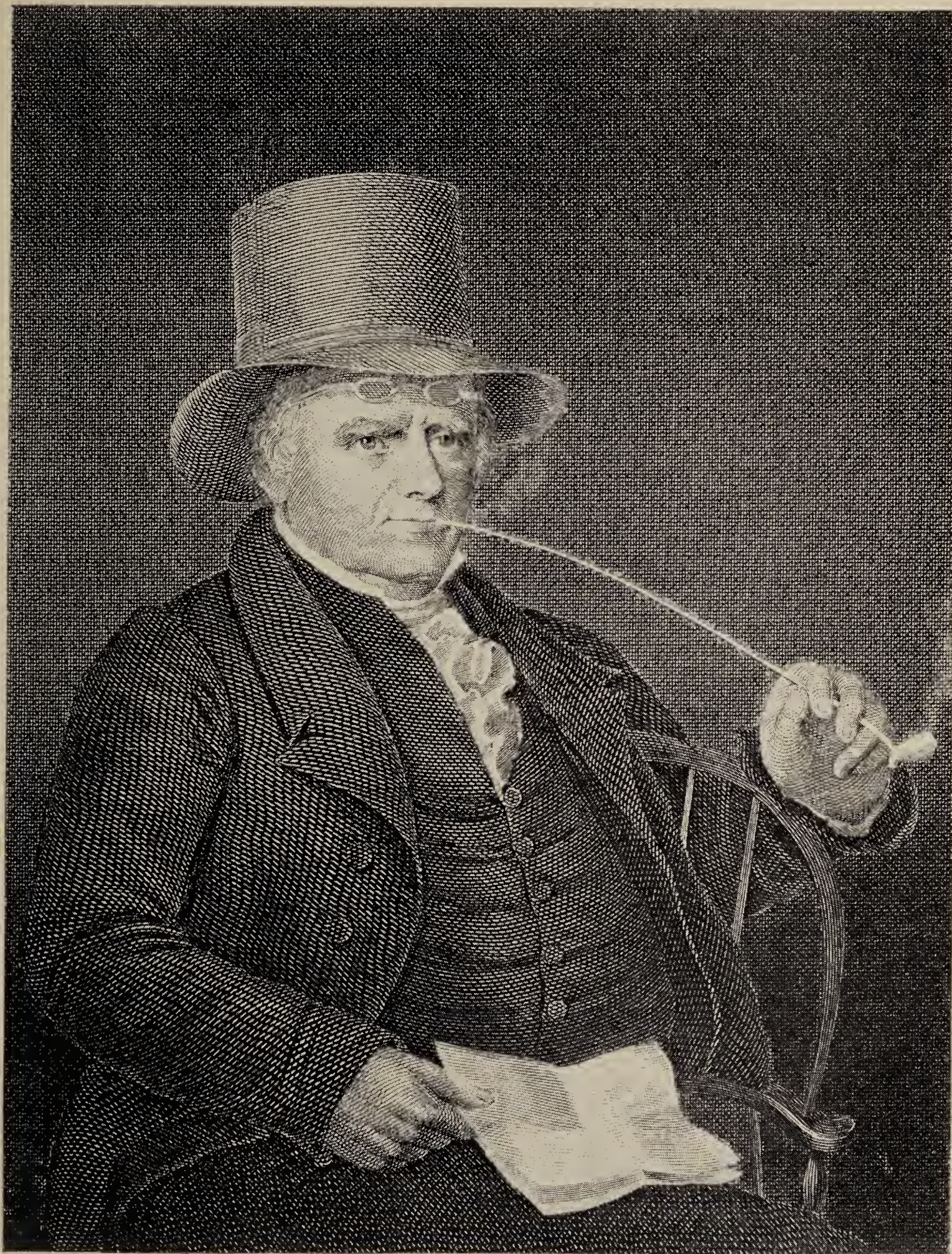
1842. From this humble beginning has grown the State Fair of the Empire State, hardly to be surpassed in the whole country, which continued without interruption under the auspices of the New York State Agricultural Society until 1899 when its management was taken over by the State.

Under an act passed April 7, 1819, a Board of Agriculture was created with an annual appropriation of \$10,000, to be distributed among county agricultural societies for the purpose of carrying on county fairs. The State was to contribute, within limits, an amount equal to what the societies might raise by voluntary subscription. The societies were empowered to elect officers, the stipulation being that they were to be from among practical farmers, whose duty it should be "annually to regulate and award premiums on such articles and productions as they may deem best calculated to promote the agricultural and manufacturing interests of this State." Another interesting provision was that each person receiving a premium for an agricultural product should make a full description of the methods that he had employed in producing it and deliver this description to the president of the society. The ex-presidents were to constitute a Board of Agriculture which should meet annually at Albany, and there examine all such reports from the various societies and publish such as were deemed worthy. The Board was to publish a volume "to be distributed by said agricultural society, to the good people of the State, not exceeding one thousand five hundred copies of such volume." This organization went into effect and continued until 1826, when it expired by limitation.

The influence of these county organizations with their exhibitions was of inestimable value. They contributed the chief help New York was giving its farmers, and took the sole place of the manifold activities the State now supports in the name of agriculture.

The American agricultural fair is a native institution, exemplifying in high degree characteristic genius as it flowered 100 years ago. State and county fairs are the outcome of the thought and acts of Elkanah Watson, a visionary, seer in business, adventurer, the first American, if we except Benjamin Franklin, whose friend





ELKANAH WATSON







## AGRICULTURAL ORGANIZATIONS

and disciple he was, to promote an organized attack on the national resources of the country. Elkanah Watson was born in Plymouth, Massachusetts, January 22, 1758, and died in Port Kent, New York, December 5, 1842. In 1773 he was apprenticed to John Brown, a wealthy Providence merchant, who gave much of his time and money to the cause of the colonies in the Revolution. Brown kept young Watson busy on highly important errands during the war and in 1779 he was sent by the government to deliver dispatches to Benjamin Franklin in Paris. After the war he was engaged in business which took him to all parts of the country and gave him opportunities to meet the nation's most prominent men. In 1789 he moved from Providence to Albany, where for 18 years he was an active promoter of public enterprises—banking, canals, waterways, agriculture, education. In 1807 he removed to Pittsfield, Massachusetts, where he engaged in farming and became the founder of agricultural societies and fairs. In 1816 he returned to Albany to continue the good work. In 1828 he settled at Port Kent on Lake Champlain. He was the author of several books and of many articles and pamphlets on agriculture and economic topics, all valuable contributions toward the development of the country.

Elkanah Watson was in the prime of life, well toward 50, when he purchased his farm in Pittsfield. But he engaged in his new occupation with all the fervor of youth and with the avowed purpose "to show Americans how to farm." One of his first ventures was to buy from his friend, Chancellor Livingston, a pair of imported Merino sheep. These two sheep, tied to an elm tree in the public square of Pittsfield, constituted the first American fair in which exhibits were the prime object. He was induced, he says in the *History of the Berkshire Agricultural Society*, published in 1820,

"to notify an exhibition, under the lofty elm tree, on a public square, in Pittsfield, of these two sheep. Many farmers, and even females, were attracted to this first novel and humble exhibition. From this lucky incident, I reasoned thus: If two animals are capable of exciting so much attention, what would be the effect of a display on a larger scale of different animals. The farmers

present responded to my remarks with approbation. We thus became acquainted, and from that moment to the present hour, Agricultural Fairs and Cattle Shows, with all their connections, have predominated in my mind greatly to the prejudice of my private affairs."

Thought was the soul of action in Watson's make-up. He laid siege to farmers, newspapers, and the Legislature with plans for a great American fair for Berkshire county and the village of Pittsfield, under the auspices of an agricultural society which he hoped to found. In the winter of 1810, Watson's society received a charter from the Legislature of Massachusetts, and the preliminaries were perfected for a fair in the following September. All this was not accomplished without difficulties. It was not easy to interest the public. The Legislature was indifferent. Newspapers ridiculed Watson's plans. No one would join him in the work. It turned out to be a prodigious task, and only a man of Watson's energy and perseverance could have carried it through.

The day came, was beautiful, and all highly auspicious. The village was early thronged by excited and interested spectators. Farm animals of every kind came to the place of exhibition from every direction. We must let Watson tell the story:

"It was," he says, "as splendid, novel, and imposing, beyond anything of the kind ever exhibited in America. It cost me an infinity of trouble, and some cash; but it resulted in exciting a general attention in the northern states and placing our society on elevated ground. In this procession were 69 oxen, connected by chains, drawing a plough held by the oldest man in the county;—a band of music;—the society, bearing appropriate ensigns, and each member decorated with a badge of wheat in his hat. A platform, upon wheels, followed, drawn by oxen, bearing a broadcloth loom and a spinning jenny, both in operation, by English artists, as the stage moved along. Mechanics with flags—and another platform still with American manufactures. The pens were handsomely occupied by some excellent animals."

Watson does not exaggerate. The Berkshire County Fair was a success, and a huge one. It carried the country by storm, and the Berkshire system was soon adopted in every progressive agri-



cultural community in the Union from Maine to Georgia, and from the Atlantic to the Mississippi. Watson says, "All were teeming with the praises of the society, holding it up to view as worthy of general imitation." The county fair at once became an American institution. The Berkshire fair the next year, 1812, was distinguished by a great increase in premiums, amounting to a total of \$208.00. Watson could not let matters rest with a one-day fair. He had woven from his best wool a piece of superfine broadcloth from which were clothed the president of the United States and several other prominent men in the country. Specimens of the cloth were exhibited in various cities. For the time being, Watson was the P. T. Barnum of American agriculture.

A hundred and twenty years have gone by. As the pattern for all the state and county fairs held in the United States since, what was peculiar in Watson's fair? From the middle ages down we have accounts of market-fairs and probably they go back to the dawn of commercial exchange. Watson's Berkshire County Fair was a success because it incited competition, one man wagered against another; because it stirred up a spirit of emulation, every onlooker wanted to do as well as his neighbor's best; and because the new

## HISTORY

OF

## Agricultural Societies,

ON THE MODERN

BERKSHIRE SYSTEM.



From the year 1807, to the establishment of the  
State Board of Agriculture in Albany,  
*January 10, 1820.*



**ALBANY:**

PUBLISHED BY D. STEELE.

Packard & Van Benthuysen, Printers.

1820.

TITLE PAGE OF ELKANAH WAT-  
SON'S HISTORY OF AGRICUL-  
TURAL SOCIETIES

type of fair had as many interests as could be aroused. There were not only animals and grains, but fruits, flowers, foods, clothing, machinery, woolens, linens, works of art—about everything that the heart of a farmer, man or woman, could wish. Nor were the intellectual and spiritual faculties ignored. There were parades and freaks and shows to amuse; songs to be sung by full choirs, and brass bands to furnish instrumental music; then, as now, orators, politicians, and public officers held forth; and Watson, wishing that the spiritual side of man be catered to, coached clergymen in long, harvest-home prayers. His premiums were works of art. To awaken the widest possible diversity of interests—this was Watson's secret, and every successful fair held since has had it.

The farmer's almanac, a century ago, furnished news, literature, amusement, and all sorts of odds and ends of knowledge to its friends and patrons. If one wants, then, the best mirror of the times, as relates to farmers at least, go to a well-known long-established almanac. Robert B. Thomas's *Old Farmer's Almanack*, first issued in 1792 and with a run of over a century, is the best. It is interesting to know what Thomas thought of fairs. Well, here is what his *Almanack* says under date of October, 1824, only 13 years after the first Berkshire county fair. It was written to amuse, but read between the lines and one can see that in these 13 years the fair had become one of the common fixtures of agriculture:

"This is the month for cattle shows, and other agricultural exhibitions—Premiums are offered by various societies for the greatest crops; the best stock, and the best domestic manufactures, and thousands are pulling away for the prize, with all their might.

The great Bull of Farmer Lumpkins is a Nonsuch!

Peter Nibble has raised a monstrous field of white beans!

Joe Lucky's acre of corn has seven stout ears to the stalk!

Dolly Diligence has outstript all in the bonnet line!

Tabitha Twistem's hearth rug is up to all Market-street!

The Linsey-Woolsey Manufacturing Company have made the finest piece of satinet that ever mortals set eyes on!

There is the widow Clacket's heifer, she is to be driven!

And, O, if you could only see 'Squire Trulliber's great boar! They say it is as big as a full grown rhinoceros!



## AGRICULTURAL ORGANIZATIONS

Huzza, huzza for the premiums! Here's to the girl that can best darn a stocking, and to the lad that shall raise the biggest pumpkin!"

Having now spent nine years of his life and nearly exhausted his pocket-book in his attempts "to show Americans how to farm," Watson found that he must take in sail in the development of his farm hobbies and in some way retrieve the money he had spent. In 1816 he returned to business in Albany but soon found that he could not get away from the absorbing task he had set himself. Several counties in New York wanted to organize agricultural societies and hold fairs and asked Watson for help. Proud of his Berkshire system and anxious to introduce it, he did not hesitate to accept invitations to lecture and to give personal aid in conducting societies and fairs. The first call to be accepted was to Otsego county where a fair, the first, was to be held in Cooperstown. There he went, 24 hours ahead of time, to plan with several "choice spirits" for the coming day. Aware that the State was looking on and that the outcome was momentous for agriculture, he put forth his best efforts.

The day was fine, the plans were perfect, and the whole county, interested in the novel experiment, attended. The fair began with a procession in which were 200 members of the agricultural society, each with a wheat cocade in his hat, the clergy, prominent men from neighboring towns, and citizens of Cooperstown. The procession was led by a band, and a plow followed in its train. The stopping place was at the church where the fair was opened with prayer, after which an ode was sung, then an address by General Morris, more singing, and then an address by Elkanah Watson, an extract of which, happily, has been preserved and is here given as a fine piece of county fair oratory in the style prevalent a century ago:

"Happily for us all, our party divisions have subsided; a dead calm now succeeds the tempestuous storms of party strife; blessed be God, we are again a united people, and can now meet in the great American family, a band of brothers, intent only on the happiness of our country.

## A HISTORY OF AGRICULTURE

"Otsego has long stood pre-eminent in this state for its fine cattle and cheese. Although the samples now exhibited are very limited and far inferior to your resources, yet it being the first essay, the farmers have approached the experiment with hesitation. But as many here present have expressed their regret thus to have doubted,—and as the ground is now fairly laid open to the view of all, I feel a confidence, that the utmost energies of the county will be called forth at the next exhibition.

"A strong presentiment lies on my mind, that the time is at hand, when either through the national or state patronage, every county in this State,—let me indulge my enthusiasm,—I will add, in the UNITED STATES,—will follow your example.

"Could I be justified in occupying your attention still longer, I should delight to dwell on the patriotic zeal of the Ladies of Berkshire in cooperating in all our measures, to promote domestic manufactures. Permit me, however, in taking my leave, earnestly to invoke the same spirit of patriotism to inspire the females of Otsego, and that they will each consider every dollar in value they make from native materials, a dollar saved to the nation.

"Ladies of Otsego! Should you be thus inspired, I promise myself, if my life is protracted to your next anniversary, to be in the midst of you with many friends; and I fondly hope to witness a proud display of your industry, and ingenuity; and that of the ladies generally throughout this wealthy and respectable county, containing a population of nearly fifty thousand souls. How glorious it will be for you, in cooperation with the ladies of Berkshire, to furnish such a patriotic example,—thus contributing essentially to the prosperity and happiness of your beloved country,—so dear to us all. Our flax and wool are as fine as those of Europe. Cotton is one of the principal staples of our country, of which Europe is deprived.—You well know how to convert them into the useful and ornamental.

"Let us then,—young and old,—male and female,—spontaneously assemble at the next anniversary, with joyous and grateful hearts. The grave,—to promote the best good of the whole. The matrons,—to return with rewards of 'honourable testimony.' The young—to mingle, and enliven this annual farmers' holiday. Let them come forth decorated in homespun. If ornaments more brilliant are required, to add to their native charms, let them seek the lilies of the valley, and the flowers of the field, in the true pastoral style of former ages."



## AGRICULTURAL ORGANIZATIONS

One of the features of the fair was the distribution of a new variety of winter wheat which had been intrusted to Watson to bring to the farmers of Otsego county. The wheat was first exhibited in the church in front of the pulpit and then taken to the dining place where each member of the society was given a half pint of seed. The exhibition, aside from farm animals, seems to have been held in the church. At the close of the fair, Watson distributed the prizes; seven for agricultural crops, five for farm animals, and three for domestic manufactured articles. The modest sum of \$100 had been set aside for premiums. An agricultural ball closed the day. Very, very simple a one-day county fair in a village church would seem to us now, but this was the beginning, a pattern, and exemplar, after which to plan, and withal so successful that, as we shall see in the next paragraph, it led to an appropriation for agricultural societies and fairs throughout the State.

A second fair was held in Otsego county in 1817 and another county, Jefferson, held its first fair that year, and at both of these Watson took part. The next few years he assisted Oneida, Schoharie, Montgomery, Rensselaer, and New York counties, at all of which he gave addresses. He had, as it were, become an agricultural missionary and now his work was to bear fruit in the way of a State appropriation for fairs. Influenced no doubt by the approbation which county fairs were receiving throughout the State, Governor Clinton, himself most interested in agriculture, at the opening session of the Legislature in 1819 recommended the establishment of a State agricultural society, a board of agriculture, and a pattern farm. In the last days of the Legislature an annual appropriation of \$10,000 was made for agricultural societies and fairs under a board of agriculture. The plan for a pattern farm, which might have developed into an experiment station, did not receive the approval of the Legislature.

There was difficulty in organizing the new board of agriculture. As ever, when agricultural legislation is up, there were bickerings, jealousies, and many opinions. Under these circumstances, it was agreed to let a year pass before formal organization. Watson, to keep alive the interest and that no time might be lost, offered to take over the duties of a board without pay except for actual

## A HISTORY OF AGRICULTURE

expenditures. His first accomplishment was to publish a book, some 80-odd pages, giving the history of the Berkshire system and directions for organizing and conducting agricultural societies and fairs. This was distributed to societies then organized or in process of organizing. In counties where societies had not been organized, he set machinery in motion for so doing. Under his influence and direction, and the stimulus of the bounty offered by the State to all counties, six accepted and formed societies before the end of 1819.

Such is the history of the origin of agricultural societies and county fairs in New York. Of Watson's work as an agricultural missionary in the State much more might be said, and three others of his efforts must have a few words.

As early as 1813, while still in Pittsfield, Watson had sent circular letters to United States consuls in every part of the world asking them to collect seeds and plants of domesticated crops for him that might thrive in this country. In response, a great many seeds came in and these, during 1819, were in large part distributed by Watson to farmers in New York with needful information regarding them. This seems to have been the beginning of free-seed distribution in this country, quite worthwhile and a valuable aid to agriculture in the beginning, but the cause of distressing abuses years later when congressmen took the matter in hand. Watson had in mind carrying the matter further so as to include animals and farm implements, but lack of means and transportation facilities prevented an addition to his original plan.

Another idea from the ever-active mind of Watson came to flower in the United States Department of Agriculture some years later. In 1816, he prepared a memorial to Congress urging a national board of agriculture. He pressed the plan with Jefferson and Madison, but here again, as he had been with canals, banks, land utilization, education, city planning, and a thousand other visions, Watson was a man ahead of his times. The plan for a national board of agriculture was objected to in Congress as unconstitutional, as inexpedient, not thought worthwhile by some and failed to rouse interest in others. The plan, for the time being, failed; but the germ of the idea remained to be revived again in the 1850's with Horace Greeley, another visionary, as one of its sponsors.



## AGRICULTURAL ORGANIZATIONS

Watson, however, was not the first great mind to suggest a national board of agriculture. George Washington formulated a plan for such a board "charged with collecting and diffusing information, and enabled by premiums and small pecuniary aid to encourage and assist a spirit of discovery and improvement." Washington interested Alexander Hamilton in his plan, but after due consideration both he and Hamilton came to believe that a grant from Congress to sustain a national board of agriculture would be unconstitutional. It was not until 1839 that Congress ventured into this field with a modest appropriation of \$1,000 to collect agricultural statistics, and it was not until 1862 that the Department of Agriculture as we now have it was established. All of mature years, especially those interested in agriculture, have seen this department of the federal government grow, one bureau after another being added, until in 1932 appropriations came to the enormous total of \$247,283,130.

Another of Watson's favorite projects was a pattern farm. His plan was to have the State purchase a farm of from 100 to 200 acres, preferably in the vicinity of Albany, to be managed under the direction of a Board of Agriculture. On this farm he proposed to erect buildings to accommodate 100 persons and provide several workshops. The farm was to be under the superintendence of a Professor of Agriculture with several assistants. Here were to be grown plants, shrubs, grains, trees, vegetables, "to establish their relative congeniality to the soil and climate." Here also were to be in use the best improved implements of husbandry, models of which, when approved, were to be sent to the county societies. Rural architects were to submit plans for farm buildings and to keep them on file at the pattern farm. Experiments were to be carried on as to the best season for sowing crops and with manures, especially as to the best methods of preserving them. He wanted exhibition fences to test their durability, cost, and utility. Breeds of domestic animals were to be kept and experimented with at the institution. In a word, Watson had in mind all that related to practical husbandry, in connection with chemistry, horticulture, botany, and mineralogy. On this pattern farm there were to be educated 20 young men at the expense of the State, the selection of the men to be made on

## A HISTORY OF AGRICULTURE

the recommendation of the presidents of county agricultural societies. These students were to be taught agriculture in all its branches, in theory as well as in practice. Watson insisted in his plan that the students must engage in labor on the farm, as practical farmers, at least three hours each day.

This is but a brief outline of the plan as set forth by Watson. One sees at once that Elkanah Watson was an early projector of the Experiment Station and Agricultural College, which were to be established a half century later in New York and several sister states.

The Grange, born December 4, 1867, in the city of Washington, bloomed, flowered, and now fruits best of all the states in the Union in New York. Because so well naturalized and acclimated and so useful to the farmers of the State, it deserves brief mention. The happy conception of an organization which should be a school, a power in agriculture, and at the same time a farmers' fraternity, originated in the mind of Oliver Hudson Kelley, a Bostonian, in 1866. Kelley early migrated to the Middle West and eventually became a farmer, but in 1864 he took a clerkship in the United States Department of Agriculture, then struggling to establish itself. An early task was to explore the southern states and make a report to the government on the agriculture of that land then so sorely stricken by the Civil War. Grievously affected by the condition of southern farmers and their attitude toward their northern brethren, Kelley conceived the idea that a fraternity, patterned somewhat after Masonry, would be helpful to agriculture and would bring about better feeling between North and South. Returning to Washington, Kelley founded the Grange. In Potomac Grange No. 1, in 1868, the ritual of the Grange, much as it now exists, was first given trial.

The farmers of the country took to the idea of an organization which was to be fraternal, industrial, and a power to influence affairs of government. Soon the Grange was established in most of the states of the Union. Fredonia Grange No. 1, in the village of Fredonia, was this State's first chapter and the first subordinate Grange. The State now (1932) has 873 subordinates and a membership of 131,548. Year after year, since the founding of



## AGRICULTURAL ORGANIZATIONS

the State Grange in New York, at its annual meetings and through its country local chapters, the Grange has been at the forefront in influencing State and National legislation, not only for farmers but for the good of all citizens. A statement of the causes the Grange has espoused makes a splendid showing for the organization.

The Grange has pioneered throughout the whole country for good roads, rural free delivery, and the parcel post; it has championed the establishment and maintenance of agricultural colleges and experiment stations; the granting of suffrage to women was hastened by the attitude of the Grange; it favored the creation of the Departments of Labor and Commerce; advocated the election of senators by popular vote; it provides insurance for its members against fire; it helped to bring about federal control of railroads; it sponsored postal savings banks; the enactment of the Sherman anti-trust law was another achievement in which the Grange had a part; and the Grange has from first to last fought the liquor traffic. The causes mentioned have been national in scope, but the Grange in New York has been quite as diligent and influential in the public interest of the State as in the country at large.

Counting branches and subordinates, there are now, 1933, more than 4,000 organized agricultural bodies in New York covering every conceivable phase of plant and animal industries. How could one begin to set down their histories? All are true-to-name, well-grounded organizations affecting agriculture in one way or another. There is no confusion of tongues; there are no unnecessary "isms;" and among the leaders in New York agricultural societies there are few or no political quacks and no inspired Messiahs. New York agricultural organizations are unique in that they do not ask for State aid, whereas in most other states such societies receive grants from the treasuries of the commonwealths. In this State societies pay their own way with dues and assessments. Neither are they the offspring of officialdom but spring straight from the soil—farm-made and farm-managed. They form an integral and vital part of the State's agriculture with a tremendous present responsibility, and awaiting others as they may arise.

## CHAPTER VII

### SUSTAINING INDUSTRIES

**T**HE first economic problem that presents itself to settlers in any new country is sustenance—food, clothing, shelter; the second problem is ready money, for sooner or later cash there must be. Shelter provided, a little land under tillage, to what industries did early rural New Yorkers betake themselves for necessary capital? A ready conclusion would be that they sold agricultural products. Unfortunately, few New York farmers were so happily situated as to have nearby markets; also there was a painful period of preliminary years before most settlers could produce a sufficient surplus over home needs for a market even if there were one. The costs of transportation for any considerable distance, even on the best waterways, was great for products that sold for little. Animal resources, as contrasted with mineral resources, of which there were few, were inexhaustible in New York's forests and waters, and to furs and fish the first settlers turned as the most immediately available sources of revenue. European demand for furs made trapping the most profitable occupation America afforded for two centuries after the first settlements.

To what extent farmers engaged in trapping there is no way of knowing; probably in the old days as now it was for most part a winter avocation, but when the farmer could take, without going too far from home, beaver, fox, mink, wolves, bear, and otter, trapping paid large incomes in comparison with what muskrat, rabbit, and an occasional fox skin now yield to trappers. Trapping was by no means in the hands of farmers in the old days as it is for most part now. The Indians were the most successful trappers, and the great fortunes of the fur traders, the Astors, Gunthers, and Wendells, were made from peltries taken by Indians. The small pickings made by farmers, nevertheless, were important as a means of securing a little money. Trapping



## SUSTAINING INDUSTRIES

has been a sustaining industry to New York farming over a longer period of years than has the exploitation of any other natural resource. Besides, it gave in its earlier days the initial incentive to westward exploration and settlement. Trappers brought from westward expeditions glowing accounts of rich lands and the frontier was moved westward to settle them.

The hardy, adventurous, fascinating, fur trade—What more seductive theme can be found in the annals of American industries? As one reads the documentary history of colonial New York, the impression grows that it was not only the most fascinating of colonial industries, but that it was more important than all other enterprises put together for good and for evil. For 150 years, Dutch and English alike lived on skins, chiefly beaver. Yet it drained the life blood from both agriculture and commerce. Dutch and English tried without ceasing to regulate and control it and never succeeded. It was a constant source of friction with the Indians and French, the effects of which brought untold trouble to settlers. With its accompaniments of gunpowder and rum, trading stations and military posts, it brought additional viciousness in governments chronically debilitated. The rapacity of the fur traders and the license of savages too often transformed what might have been peaceful agricultural settlements into squalid, turbulent stations, the main business of which was to handle furs.

While much was made of furs from the wild life of the continent in the colonies, nothing was done then and little has been done since with wild life for food. In some European countries the game laws make wild animals, as deer in Germany, pheasants in England, rabbits everywhere, as little expensive or less so than the flesh of domesticated animals, an asset which Americans have never developed. Game in America is almost wholly reserved for the sportsman. The custom in New York, as in most American states, is to give the right to fish and hunt on all lands not enclosed, and sometimes when enclosed, which has brought about the odd paradox that dead game is property but live game is not. There can be no question but that the passage of wise game laws when the country was new might have made wild game most valuable to the people of the State.

Co-existing with the fur trade was the fish trade, though of far less importance to agricultural settlers. Yet, as in the case of furs, an important group of industries sustaining to agriculture was early built up and still continues from New York's abundant ocean, lake, and river resources. Oysters and clams from Long Island and the Atlantic coast; shad from the Hudson; in early days, salmon, and always trout, whitefish, herring, and lesser fry from Erie, Ontario, and the Finger Lakes have furnished farmers occupations that have brought in much needed money and often kept the breath of life in starving bodies in newly made settlements near these waters. After the war of 1812, the whaling industry was added to that of fishing. The British destroyed the whale industry of Nantucket in the war of 1812, and Nantucket whalers came up the Hudson in considerable numbers and made Poughkeepsie and Hudson whaling ports. Timbers for ships, barrels and casks for fish and whale oil, food, and men were supplied from rural New York. By and large, many otherwise purely agricultural communities have often been nursed through economic difficulties by near-at-hand fish resources.

Associated with trapping was a much lesser industry—an avocation for trappers, woodsmen, and farmers in the summer. The first American trading captains who rounded Cape Horn to China found that a queer twisted root was believed by the Chinese to cure many of the ills to which human flesh is heir and to be a sovereign tonic and aphrodisiac to set senile men on their legs. The root was worth ten times its weight in gold. The Chinese called the plant *ginseng*. Some sharp-eyed sea captain recognized the root as that of a plant which could be found in abundance in the forests of America. In 1785 the sloop *Experiment* sailed from New York with a cargo of ginseng for far-away Cathay. The drug was quickly disposed of to Chinese merchants at fabulous prices—\$100.00 to \$300.00 an ounce. Upon the return of the *Experiment* with its tale of a new-found treasure a search for ginseng was begun in the forests from Maine to Florida and the root was soon being exported from every American seaport in which there was trade with China. The demand and the search still continue; the supply, however, is now scant, to add to which artificial culture has been tried under lath frames, but the timorous





A LOAD OF LOGS FROM THE ADIRONDACKS  
*Courtesy Conservation Department, State of New York*







## SUSTAINING INDUSTRIES

plant is healthy and happy only in a deep forest environment and ginseng growing is a blighted hope.

All other industries with which rural New York has been concerned in the establishment of agriculture sink into insignificance in comparison with the products garnered from forest trees. From first to last primeval woods and the wood-lots that succeeded them have furnished by-products of off-season labor in farming that have carried agriculture far, far beyond what it possibly could have become had Hudson discovered a prairie when he sailed up the great river. England foresaw the value of America's forest resources to Europe more clearly than any other of the mother countries. Spain wanted gold, France and Holland were after furs, but England needed timber products for ships, charcoal for smelting, building material, bark for tanning, and even firewood, so scarce and so prohibitive had the prices of forest products become in her small island domain. The colonists soon found that forest resources could be utilized steadily, constantly, and, where near watercourses, profitably.

The domestic demand for timber products was far greater than one living in the iron age of the present might conceive until he had given the matter thought. Iron and all other metals were scarce and expensive and little was known or practiced in the metallurgical arts of the country until after the Civil War. The use of brick and cement in the buildings of the country is of recent date. Wood was burned by steamboats, railroad engines, and factories, as well as by householders, almost exclusively within the memory of many men still living. All agricultural implements and many household utensils now made wholly or in greater part of metal were made of wood. Wire for fences is a modern substitute for wood. These are but a few examples of the uses for which there has always been a demand for timber from the farm.

Of the several timber industries, none came nearer to the farm than cooperage. Staves for barrels, tubs, pails, churns, were in constant and great demand until tin and iron a few years back began to take the place of wood for these utensils. Barrels were needed at home for flour, meat, fish, cider, vinegar, and fruit; the West Indies wanted them for sugar and rum; Newfoundland for

fish; and Maderia, Canary Islands, and Spain for wine. Red and white oak and elm were the hardwoods used for barrel staves and the lumber had to be of the best since a porous stave would ruin a barrel.

The cooperage industry was largely sustained by farm workers, men who farmed in the

### COOPERING

THE subscriber informs his numerous customers and the public that he is ready to carry on the

#### *Coopering Business*

More extensively than heretofore, and will sell cheap for ready pay.

N. B. He will pay CASH for a few thousand of good hickory and oak HOOP-POLES, delivered at his shop in Geneva.

JAMES TROWBRIDGE.

August 27, 1822.

47

summer and worked at coopering in the winter or in spare time, although there were thousands of coopers scattered over the State who worked only at their trade. They were divided into two classes—"slack" coopers and "tight" coopers. Slack coopers made barrels and receptacles which need not be

water tight; the work of the tight cooper must hold liquids. Between them they made about every receptacle for wet and dry goods in use, nearly all of which have now been replaced by tin and iron.

Staves for barrels and firkins were made by hand until about 1875, when machine-made staves and heading stock displaced the hand-made articles. A fast worker could make about 15,000 barrel staves in a year. The making of butter tubs was an important industry until well along in the present generation. All butter went to market in firkins which held 112 pounds. The cooper selected free-splitting oak blocks 33 inches long, split them into bolts, and then into staves. These staves had to be seasoned for many months and were then finished into beautiful oaken casks with hickory hoops. A good cooper made an average of three a day, and a firkin sold for a dollar. Similarly there were meat tubs, sap buckets, water pails, wash tubs, and churns, all of which continued to be manufactured out of wood until the turn of the present century.

Much less important than the cooper was the cabinet-maker and yet he had his place in every community. From walnut,





LOG DRIVE, GLENS FALLS  
*Photo by U. S. Forest Service*







## SUSTAINING INDUSTRIES

cherry, and curly-maple, the cabinet maker turned out beautiful specimens of all household furniture. Spinning-wheels, plates, and bowls were made out of red maple. Coffins there had to be; likewise cradles. Gunstocks were made from cherry or walnut. Chairs, tables, chests, beds, "American furniture," which today at its best can be purchased only at fabulous prices, is the product of local cabinet-makers.

Buildings of logs and hewn timbers had to satisfy the first comers in a new settlement, but to utilize forest resources saw-mills had to be built. Maine historians say that the first sawmill in America was built at York, Maine, in 1623 and take pride in adding that this date is 40 years earlier than that of the first sawmill in England. The Dutch built mills in New Netherland to run by water and wind and afterwards they were necessary accompaniments of every new settlement in New York, small ones to meet local demands and large ones where there were water-power and means of transportation for mill products. There is scarcely a brook in the State on which there has not been mill dams to supply power for sawmills, gristmills, and tanneries. The early sawmills were primitive indeed. There were no belts, gears, few nails, and almost no iron. The saws were upright, "up and down," in which the saw running at snail's pace cut only on the down stroke, giving a capacity of perhaps a thousand board feet per day. Small mills used undershot wheels; large ones overshot. In 1845 there were 7,406 sawmills in New York, probably all run by water-power since steam mills were not built until after 1860. Logs for these mills and labor to keep the saws running came wholly from farms to the great help of agriculture.

Various salts of potassium are used in the arts, as fertilizers, for soap making, bleaching and so on. Until 1856 when the potassium deposits at Strassburg, Germany, began to be exploited, potassium compounds came from the sea or the forest. From the forest it came as crude potassium carbonate obtained by boiling down lye made from wood ashes and then evaporating to dryness. The boiling was done in iron pots and the crude product was potash—"black" in the crude, "pearl-ash" when refined. There

was always great demand for potash for manufacturing in England, and this chemical was one of the commodities which England required to be sent to the homeland only. In regions where lumber and lumber products could not be marketed, potash

*“A Penny saved is Two Pence clear!”*

TAKE NOTICE.

**I** HAVE commenced taking ASHES, at my Ashery near Freshour's Tavern, Geneva. Persons who live in or near the village will be called on at their houses for Ashes by a man in my employ.

DAVID S. SKAATS.

*Geneva, Feb. 28.*

from ashes, incidental to the clearing of every piece of forest land, was long sovereign of all money-making products. A careful farmer could usually pay for the clearing of his land from the sale of potash.

Out of the sales of black-ash and pearl-ash most farmers paid taxes, hired labor, bought clothing and

tools, and might have a little over for small purchases at the general store. From 1805 to 1825, New York sold an average, per year, of \$300,000 worth of potash, most of it from the Genesee country, but much from northern and southern counties as well. It was one of the few farm commodities that could be transported fairly easily and cheaply. It is a question, however, if a good many settlers did not continue to make potash when the ashes should have been returned to the land for the sake of potassium and calcium to enrich soils rapidly depleted by wasteful farming. So, at least, essayists and lecturers in agricultural societies of the times told their hearers.

The making of pearl-ash was for many years an important industry in northern New York, with Ogdensburg as a center, although nearly every village in the region had its pearl ovens where the black salt was bought from the farmers and from which was made a better grade of pearl-ash than the farmer could make. Pearl-ash brought \$200 to \$300 a ton on the Montreal markets. In 1805, over 1,000 tons of ash had been shipped from Sackett's Harbor alone. In 1806, the region exported potash to the value of \$3,500; in 1807, \$6,000; and in 1808, \$9,000. These were large sums for those days.



## SUSTAINING INDUSTRIES

Tench Coxe, leading American economist following the Revolution, had this to say of potash making in clearing land:

“The settler in making this clearing must take care to burn the brush and wood, in such manner as to preserve the ashes. Out of the wood ashes, thus saved, he should make as much pot ash, or pearl ash, as he can; and he should dispose of this for ready money, strong clothing, axes, spades, ploughs, or such other things for his farm, or family, as it would otherwise be necessary for him to procure by selling or bartering grain or cattle, if he had them to spare. It is believed that the pot ash or pearl ash will procure him as much value as all the expense and labour of the clearing, during the season, would be worth in cash. He will therefore obtain as much money or goods as will enable him to hire assistance, in the next season, either to farm, or to clear land, or to make his improvements, so as to save his own time, or labour, intirely, for clearing more land, or to help him in doing it. He must again make pot ash or pearl ash, and he must again apply the money or goods, it sells for, to the clearing of the next season.—In this way it is plain, that he will derive money enough from the clearing and pot ashes of every year, to do much of the same in the year following. A man who has 40, 50, or 100 dollars to spare, at the out-set, will get his land cleared, in this manner, very fast indeed.”

Another forest-farm industry not connected with growing was peeling bark from oak and hemlock for the tanneries. Bark was a by-product of both land-clearing and lumbering. As a youth, the writer helped to peel hemlock bark in northern Michigan summer after summer. The process was—it must have been the same in New York—to enter a grove of hemlocks and fell a few small trees. Across these the giants of the grove were laid as carefully as possible, a preliminary being to remove a cylinder of bark four feet in length where the frontward notch of the axe and the cut of the saw from the rear were to be made. The tree down, one man lopped off the branches; a second ringed the bark through to the wood in four-foot cylinders, and opened the cylinders at the top; a third removed the bark with a narrow spud—perhaps two inches wide—in which was set a wooden handle 30 inches long. Stripped from the tree the bark was leaned against the peeled trunks, smooth side out to the sun that the oozy

## A HISTORY OF AGRICULTURE

cambium might be dried, then corded to be hauled in due course to the tannery where it brought from \$4.00 to \$8.00 per cord.

Bark-peeling is done in June and July when cambium is making and the bark parts freely from the bole. In no other kind of farm or forest work do laborers suffer greater tortures. The men pant for breath in the dead, heated air of the closed-in forest; mosquitoes suck their blood; black flies nip, poison, and raise great welts on every part of their bodies; tormenting gnats set neck, face, and scalp on fire. At intervals the peelers must sit to rest and cool tired and perspiring bodies and nurse the wounds made by insects. It was work for strength and skill, at which brawny men labored and sweated throughout long days, stopping only to light a pipe or take a draught from a jug, raised high on a crooked arm, from which luke-warm water gurgled into the parched mouth of a perspiring, grimy face.

Nevertheless the work had its compensations. Bark-peeling was the most picturesque of forest tasks. As one came to the hemlock grove in the depths of the forest and stood on the border of the opening the sun blazed down, bringing out in high relief the torsos of giant trees stripped of bark. They laid like jack-straws, fantastic in position, shape, color, texture, with knots, bulgings, severed limbs, and the rings made by the peelers at uniform distances along the tree-cylinders flickering in the light and shade of uncut trees. Intermingled with the fallen timbers were ramparts of dried bark, four feet wide and man high. Underneath was a ground-work of Canadian yew (shin-tangle in the parlance of the peelers), mazy tangles of ferns, partridge berries, winter-greens, princess pine, splashes of red bunchberries, and a brilliant assortment of forest flowers.

The air was loaded with the scents of shady woods, the delicious penetrating perfume of trailing arbutus, the odors of fungi, of spicy wintergreens, and of the sweet fern. Throughout the day the downy woodpecker's scarlet coronet could be seen and his rat-a-tat on hollow trees mingled with the discordant scream of the crested blue jay, the "dey, dey, dey" of the chickadee, and the solemn "yank, yank, yank" of the nut-hatch. Toward evening the plaintive song of the veery was heard. It would be pleasant to record that the thoughts and words of the bark peelers were





CHARCOAL KILNS  
*Photo by U. S. Forest Service*







## SUSTAINING INDUSTRIES

in accord with nature, but most often the noises from human throats, other than those having to do with the work in hand, were amorous ditties and Rabelaisian humor interlarded with a choice assortment of oaths and obscenity. The hirelings in forest industries were seldom men of genteel words.

Tanning, now a major industry carried on in a few great tanneries, was until comparatively recently a handicraft in every farming community. It might have been a farm operation, as it is in many parts of the Old World, had it not the drawback of absorbing considerable capital before returns come in. In a small tannery, however, the machinery once having begun to revolve, the returns are steady, the risks few, the results permanent, and the profits satisfactory. As late as 1845, New York had 1,414 tanneries, two or three to the township. After this date there was a steady decrease in the number and a great increase in the size of those that remained. Tan-bark, with which the farmer was more concerned than the handling of skins, was largely a product of the southern tier of counties and those in or surrounding the Adirondacks. The first large tanning establishment in the State seems to have been erected in Mongaup Valley, Sullivan county. In 1856 this tannery turned out 50,000 sides of leather valued at \$187,000, with a consumption of 5,000 cords of hemlock bark. Other tanneries in the town more than doubled these figures for the community. One sees at once that hemlock bark was a commodity that brought much money to farmers who owned hemlock groves, more than the figures given imply because the peeled hemlock trunks went to the sawmills for lumber.

Charcoal, used in the arts since the arts have had a place in human craftsmanship, furnished another sustaining industry for New York farmers from the first settlements until coke and the products of wood-distillation plants in comparatively recent times displaced the charcoal burner of the farm and forest. Charcoal was from Adam's time until less than a century ago the blacksmith's, the tinsmith's, and the metalworker's sole fuel; a polishing powder; a filter and decolorizer of solutions and water; an absorbent of gases; a non-conducting packing in safes and refrigerators; and an all-important ingredient in gunpowder and fireworks.

## A HISTORY OF AGRICULTURE

In earlier days the straw-beehive-shaped structures of the charcoal burners were familiar sights wherever settlements had been made in the forests of New York.

The charcoal burners' processes are essentially the same the world over. Hard wood—elm is the best—is cut in lengths of from three to five feet. The charcoal kiln is laid with a pile of kindling wood in the center. Around the kindling the lengths of wood are set up on end, leaning toward the center, and so continued until a round pile 20 feet in diameter, let us say, is laid. On top of this lower pile is built another pile, and on top of that still another and another until perhaps 25, 30, or 40 cords of wood are in use. In the farm process, the layers of wood are then thickly covered with layers of earth and sod, with openings to give some draught when firing begins. Or, permanent kilns of brick or stone are built as in the accompanying illustration. All being ready, the pile is fired and when the fire is burning briskly all openings are closed. The kiln requires constant attention from the charcoal burner since the fire often breaks out, and such a break must be immediately covered with fresh earth. Day and night for 10 days or two weeks the burner watches, sometimes he keeps in hand two, three, or four kilns. A cord of wood makes about 30 bushels of charcoal, which sold from 15 to 30 cents per bushel in the old days. The man who cut the wood thus received from \$4.00 to \$8.00 per cord for his wood—a good round sum since a good woodsman could cut a cord a day. Hauling, of course, came out of the sum the charcoal burner was paid.

Quite dependent upon the charcoal industry was the vocation of the blacksmith. Until the coming of motor vehicles, there was a smithy at nearly every four corners in the agricultural communities of the State, and blacksmithing, horse-shoeing, and the making of wagons and carriages were important industries in every town. Apprentices for these trades were largely recruited from the farm, and at every turn the industries were related to farm life. There is no older nor more honorable occupation, if the prevalence of the name "Smith" be a criterion, than that of the blacksmith. The blacksmith shop was a magical shrine to the children of generations that have gone.





TROTting CRACKS AT THE FORGE  
*From a Currier & Ives Print*







## SUSTAINING INDUSTRIES

“And children coming home from school  
Look in at the open door  
They love to see the flaming forge  
And hear the bellows roar  
And catch the burning sparks that fly  
Like chaff from the threshing floor.”

Blacksmithing in its day was a noble art, and who among us who have watched the smithy in his dusky cave draw the glowing iron from the heart of fire; heard the clang, clang, clang of the anvil, accompanied by a shower of ruby sparks, as he shaped the shoe; and then breathlessly seen Vulcan hold the hoof, and nail home the metal, does not covet the privilege for the children of the present generation.



BLACKSMITH'S SHOP  
*From a modern etching*

Gristmills run by water power quickly took the place of mortar and pestle by which the first settlers, Indian fashion, made coarse meal. Properly speaking, a gristmill is a custommill where customers may bring grain to be ground into meal and flour with the expectation of paying toll in kind or money. When the miller buys grain and markets its products, the establishment becomes a flourmill. The gristmill was indispensable to every farming community from the first settlements until flourmills began to operate in several cities built about falls in rivers sufficiently large to give abundant and cheap water power. Of such cities in New York, Troy, Oswego, and Rochester became notable for their flour industries in the first half of the nineteenth century to be largely superseded by flourmills using steam power in nearly every city



## A HISTORY OF AGRICULTURE

and town in the State during the last half of the century. These, in turn, have largely disappeared, driven out by the competition of western mills. Thus are the candles of industry lighted and snuffed.

The gristmill followed closely the westward movement of settlements, but not too closely as "going to mill," 30, 40, 50 miles, grain carried on horseback, then by ox-cart, over almost impassable trails and roads was an early hardship in nearly every new settlement. The happy accident of water power in river or stream determined the location of most of the towns in inland New York as a thousand early names attest. A mill, a church, a school, a store were the foci of most New York rural hamlets. The earliest mills consisted of little more than millstones and power and gear to keep them running. The millstones were from three to seven feet in diameter, of native granite, Esopus stones quarried in Ulster county, or, later, stones imported from France. The lower stone, the bedder, was stationary, while the upper one, the runner, revolved. The product of primitive mills was whole wheat flour; the bolt to separate flour from bran and middlings came in as a luxury when a settlement saw its second generation. The gristmill required steadier, more constant, and greater water power than a sawmill; and whereas a sawmill might be run with a small, light, undershot water wheel, the gristmill usually was run by the slow-turning, ponderous overshot wheel.

An account of the attempts to manufacture sugar commercially in the United States with all of the collateral events of England's sugar taxes, of new industries started from maple, cane, sorghum, and beets, of several periods of wild speculation, would make interesting chapters in the histories of American agriculture and industry. The art of making maple sugar was learned from the American Indians, who had practiced it for untold ages, by the first Europeans who had intercourse with the aborigines, and immediately speculation began as to how sugar-making could be turned to profit. For a hundred years after the Revolution it was the fond hope of American farmers in the northern states that sugar might be made out of sorghum or beets and experiments with both still continue as they do with super-sweet sugar from





THE GRISTMILL AT SUDBURY, MASSACHUSETTS

*Courtesy of Henry Ford Estate*







## SUSTAINING INDUSTRIES

Jerusalem artichokes and dahlias. But we must stick to maple sugar, long a profitable product on New York farms.

Among the arduous tasks of agriculture, especially of pioneer agriculture, it is pleasant to find one of small labor, one that is in part frolic. Such is the making of maple sugar. The sugar harvest comes when there is little or nothing to do on the farm. A time when logging in the woods has been finished, and night-time frosts and "sugar-snows" prevent the handling of the soil. Every farmer with a sugar grove looks forward to April when sap will run and counts "sugaring-off" a spring-time harvest about as important as hay-making, harvesting, or corn-husking. It is one out-of-door farm operation in which women may pleasantly engage since often they boil down the sap which the men collect. Besides furnishing the household sugar, granulated or in patty-pan cakes, by stopping the boiling down process just before the concentrated liquid would "sugar," a very good syrup is made—maple molasses for a year's supply of pancakes, hot-bread, and biscuits. Maple sugar was the sweetening ("long sweetenin" it was called) for culinary purposes, tea, and coffee in farm life, almost until nowadays when granulated cane and beet sugar have become cheap and much better in quality than the several grades of brown sugar sold a generation ago. Three barrels of sap boiled down to one, to which a little yeast was added, made small beer of a sort, "a very pleasant drink, sufficiently spirituous," one old writer says; further fermented it made fair vinegar.

Sugar that is sold is clear gain to a farmer, but the crop has ever been uncertain and the market none too sure. When winter lingered and spring came with a sudden leap the season was short or even non-existent. Ideal "sugar weather" consisted of frosty nights in which the trees cracked with the report of a rifle, followed by sunshiny days. Two weeks or more of this weather made a good sugar season. A man with two sons or other male helpers and a wife and daughters to "boil down," especially if he could count on neighbors coming in to help at "sugaring-off" frolics, might tap in the neighborhood of 500 trees with the expectation of four pounds of sugar per tree. The sugar sold at from 8 to 15 cents per pound. Unfortunately, in the early days at least, the market was often glutted because England's sugar laws

forbade the importation of maple sugar and, moreover, much of the foreign trade of the colonies was with the West Indies in exchange for sugar and rum. What with uncertainties in production and markets, the maple sugar industry never became of any great importance in New York, but several interesting sugar speculations ran their course with considerable vigor. Two of these are worthy a few paragraphs.

Before, during, and just after the Revolution, there were a good many people on both sides of the Atlantic who dreamed of supplying the world with sweets from America's maple sugar trees. These idealists went so far as to say that maple sugar could easily drive cane sugar off the market. It was a long and involved plan, since it had in mind putting an end to slave labor in its most profitable form in the West Indies, as well as to make money from maple sugar. Particularly, a number of men interested in the Holland Land Company were anxious to build up a great maple sugar industry in New York. Gerrit Boon was sent out from Rotterdam, Holland, by this company to purchase the necessary sugar maple lands and to manage the sugar business. He came to New York in 1791, after having looked over tracts of maple sugar land in several other states, and was favorably impressed by the maple groves of New York.

Boon secured a tract of 30,000 acres north of Fort Stanwix, now Rome, the Service Patent, and here he started his sugar enterprise. Later two other blocks of land in the region of the Black river, one of 45,000 acres, the other of 65,000 acres, were added to the tract further south for Boon's experiment. It may be well believed that the Holland Land Company had in mind they would make sugar in all of their vast tracts. Boon began his work with enthusiasm. In February, 1793, he was on the ground, planning for what at the time would have been the world's largest maple sugar bush. He soon had a score or more men at work on a site where the slope was such that he could use gravity in carrying sap to a large vat. To be sure, he began his experiment on a mere 17 acres, but he hoped within a few years to have 10,000 acres under hand with the expectation that he could produce a million and a half pounds of sugar per season.



## SUSTAINING INDUSTRIES

His plans were so extensive, his ideas so fantastic, that it was not until 1794 that he really made a start. He had on hand a great number of specially made troughs to catch the sap; his gravity system was working; he had the men to do the work; finally, the trees were tapped. At first all was propitious, but disasters came on apace. The thin wooden troughs and pipes were quickly warped and cracked by sun and frost so that they would not hold sap. There was a sawmill, abundance of labor, and plenty of money to carry on the experiment, but all methods of making maple sugar, excepting slight modifications of the primitive one, failed. No doubt Boon could have made a success, in a small way at least, had he given up his gravity system and collected the sap in the wooden buckets of the settlers, but this he would not do. The season's experiment cost Boon's backers \$15,000, and the sugar produced sold for less than \$3,000. The present village of Boonville marks the site of the first of the maple sugar experiments on a large scale in New York.

At the time the Holland Land Company was trying to build up a maple sugar industry in New York, Judge William Cooper, father of James Fenimore Cooper, Cooperstown, Otsego county, was planning on a similar scale. He sought to interest men in Philadelphia who could command capital to go in with him, and wrote the following letter to Henry Drinker, Benjamin Rush, and Tench Coxe, of Philadelphia:

Coopers Town, April 9th, 1793.

Gentlemen,

Being convinced, that you feel an interest in the manufactory of maple sugar, and that your wishes and exertions to prevent the destruction of the trees from whence it is produced, have been of public utility—We are encouraged to transmit to you the statement we have been able to make from actual observation, of the quantity of sugar which has been made this season, in the former township of Otsego, and which was an entire wilderness in 1786—We find, upon a moderate calculation, that there has been made at least one hundred and sixty thousand pounds weight, which at nine-pence per pound is equal in value to 15,000 dollars. This plain demonstration of the importance of this article will, we hope, induce you to continue your endeavors to promote and

## A HISTORY OF AGRICULTURE

encourage it, and we would submit to your consideration, whether it is not an object of sufficient consequence, to claim the encouragement of the legislature of your state.

William Cooper,  
Rich R. Smith,  
Renssel. Williams, Jun.  
Charles Francis,  
Lewis De Villers,  
Ebbal.

Tench Coxe was much taken by Judge Cooper's figures, said they were not wild and visionary, but founded on facts very carefully ascertained and that Cooper's plan was wholly feasible. He adds

"It is certain that every farmer having 100 acres of sugar maple land, in a state of ordinary American improvement, that is, one-third covered with judicious reserves of wood and timber, and two-thirds cleared for the culture of grass and grain, can make 1,000 pounds weight of sugar with only his necessary farming and cooking utensils; if his family consist of a man, a woman, and a child of 10 years, including himself. It would, therefore require the attention of 26,000, of such small families, occupying, at 100 acres each, 2,600,000 acres of these lands, to make, at 1,000 pounds each, 26,000,000 pounds, or a quantity of sugar equal to all the molasses and sugar annually consumed in the United States. The operation in a family is as easy as to make household soap or cheese or to brew ale or beer; and as there is in this country above twice the quantity of sugar maple land, in situations not too southern, the only object that required attention was to give as fast as possible, generality to this simple, profitable, and comfortable manufacture."

Everywhere in the north after the Revolution, at a time when sugar and other imported articles were scarce, speculative minds turned to maple sugar as a substitute for the West India product as they did to substitutions for many other imported wares. One of the best-known promoters of American industries was Dr. Benjamin Rush of Philadelphia, a signer of the Declaration of Independence and the best-known physician on the continent.





BOILING MAPLE SAP  
*Photo by U. S. Forest Service*







## SUSTAINING INDUSTRIES

Dr. Rush carried out an experiment at which Alexander Hamilton was present, to prove that maple sugar was just as sweet as West India cane sugar. In 1791, he presented a paper on the subject to the American Philosophical Society in which he was quite as sanguine as to the future of maple sugar as were Coxe, Boon, and Cooper. Rush thought we might develop a maple sugar industry not only so far as to supply the domestic market, but that we might export sugar enough to destroy the plantations in the West Indies, "to render," as he says, "the commerce and slavery of our African brethren in the sugar islands as unnecessary as it has always been inhuman and unjust."

Perhaps maple sugar might have come into its own as a profitable industry had not other experiments in sugar making been going on at the same time in the United States. In the same year that Rush read his essay on sugar making before the Philadelphia Philosophical Society, Antonio Mendez was making in New Orleans the first cane sugar produced in the South. A few years later, Etienne de Bore produced sugar in Louisiana in paying quantities and a little later the introduction of new varieties of sugar cane from Java made certain that for a long time the supply of sugar for the United States was to come from Louisiana.

The sugar beet has attracted attention in several periods of New York's agriculture. About the middle of the eighteenth century, a German chemist succeeded in separating sugar from the beet, and at once advocated its manufacture on a commercial scale. It took a half century, however, to cheapen the process, so that it was not until the beginning of the nineteenth century that sugar-making from the beet began to receive recognition in European countries. Interest in the new industry was stimulated in France by governmental aid, and in various other countries scientific and industrial societies offered prizes. In 1812 the first beet-root sugar was offered for sale. From that date, the industry has advanced until now the total quantity of sugar probably amounts to about 10,000,000 tons annually. The first attempt to make beet sugar in the United States was at Philadelphia in 1830. In 1833 several attempts were made to make sugar from the beet in New York. For one reason and another, chiefly because of lack of capital to build plants, these early attempts failed in the United States. The

first successful factory in this country was established in California in 1869. Again, there were several attempts in the seventies to establish the industry in New York, all of which failed. During the nineties still another attempt was made in New York and a large factory was built at Lyons, where sugar was made for several years. This time it was the cost of labor in the growing of beets that brought about failure. There are now many factories in the United States, operating at full capacity, but none in New York, nor does it seem likely that this State will ever be able to compete with other regions in this industry.

There were other curious and eccentric substitutions proposed for West Indian sugar. In Philadelphia, probably at the suggestion of Dr. Rush, an attempt was made to produce sugar from watermelons. Half a pint of syrup, in the experiment reported, was obtained by "gradually boiling the strained pulp and juice of a melon that weighed 14 pounds." Bordley, an agricultural expert of the time who tasted the sample, computed that at this rate an acre of land would produce \$143 worth of sugar. With the freedom of scientific fancy, he writes, "here are flattering circumstances to induce experiments that may prove how easily the country family may become independent of foreign countries for sweets in the class of sugar, and at a very cheap rate." At a little later date, a well-known scientist interested in agriculture, Timothy Pickering, in an address before the Essex Massachusetts Agricultural Society, discussed a project of making molasses and sugar from sweet apples. While Mr. Pickering "had never tasted any sweet apple molasses" and thought that probably it would not have "the rich sweet of molasses from sugar cane, yet possibly it may give a supply for family uses in general." Pickering said he knew a gentleman whose judgment he respected who maintained "that it would not be difficult by forming orchards of sweet apples, to supply molasses for the general consumption of the United States."

Sugar suggests salt. It requires no great disturbance of the imagination to call maple sugar an agricultural product; not so salt, yet the production of salt in New York from the bounteous salt springs of Salina and Syracuse most profoundly affected agri-



## SUSTAINING INDUSTRIES

culture in central New York. Salt in solution cannot be solidified without evaporation and in New York artificial heat was long in use before solar vats took the place of caldrons. For 60 or 70 years after salt-making began in New York, heat for boiling down was supplied by burning wood. Moreover, the salt was shipped in barrels made by New York coopers from New York wood. The transportation was by waterways after the Erie Canal was built and towing was done by horses and mules which were bred on and were fed from farms. For more than a half century salt-making was a sustaining industry in all central New York. Let us take a view of the industry as seen by an Englishman, Captain Marryat, in 1838. Captain Marryat writes:

“Salina is a village built upon a salt spring, which has the greatest flow of water yet known, and this salt spring is the cause of the improved appearance of the country; the banks of the canal, for three miles, are lined with buildings for the boiling down of the salt water, which is supplied by a double row of wooden pipes. Boats are constantly employed up and down the canal transporting wood for the supply of the furnaces. It is calculated that two hundred thousand cord of wood are required every year for the present produce; and as they estimate upon an average about sixty cords of wood per acre in these parts, those salt works are the means of yearly clearing away upwards of three thousand acres of land. Two million of bushels of salt are boiled down every year: it is packed in barrels, and transported by the canals and lakes to Canada, Michigan, Chicago, and the far west. When we reflect upon the number of people employed in the manufactories, and in cutting wood, and making barrels, and engaged on the lakes and canals in transporting the produce so many thousand miles, we must admire the spring to industry which has been created by this little, but bounteous, spring presented by nature.”

The salt industry in Syracuse meant so much to the agriculture of New York during a long period in which it was the chief outlet for labor and woodland supplies that it deserves a brief history. The salt springs of Onondaga seem first to have been mentioned by Father Lallemant, a Jesuit missionary, who visited this region in 1645. He speaks of a salt springs and a fine spring of fresh water coming out of the same bank within 100 paces of each

other on the margin of a lake. Father LeMoyne, who visited the country in 1654, writes of a spring which the Indians told him was fouled by an evil spirit. Other Jesuit missionaries made frequent visits to these springs and before the English came to occupy the country had taught the Indians how to manufacture salt.

In 1789, Asa Danforth and Comfort Tyler came to Salina, bringing with them a kettle which they suspended from a pole supported by two crotched sticks and boiled down the first salt manufactured by whites. In 12 hours they made 13 bushels of salt which to settlers in the surrounding country was as precious as gold. For several years after this first effort, settlers from far and near brought their own kettles and manufactured salt. The first whites in Salina came in 1790, and proceeded at once to boil down salt in kettles suspended from poles or resting on piles of stone. A caldron set in an arch was put in use by James Van Blecht in 1793, and soon caldrons only were used. It was not until 1798 that a building was put up. From this time on, buildings increased rapidly in size and number. The manufacture of salt was begun at Geddes in 1793 by James Geddes, and in Liverpool at about the same time by John Danforth. The first wells in the old village of Syracuse were opened in 1830. In 1821, a great step forward in the manufacture of salt was made by the evaporation of the brine in solar vats which greatly reduced the costs of labor and fuel.

At first, the brine was dipped up in pails and carried to the kettles for boiling. In 1790, this method was superseded by a pump placed upon a platform over the spring, with troughs leading to the kettles, each manufacturer pumping enough water for his own use. Later, men were employed to pump for all. As the number of salt blocks increased, they were of necessity located farther and farther from the springs so that lines of pump logs had to be laid from the springs to the various works. In 1805, horse-power was introduced to pump the trough water, and a few years later this means of pumping was superseded by water-power from Yellow Brook, the brine being elevated by means of a wheel to which buckets were attached. In 1821-22, the Coarse Salt Company erected a large pump driven by power from waste water from the new Erie Canal. In 1826, the State bought most of the



## SUSTAINING INDUSTRIES

pump works and enlarged them sufficiently to supply all manufacturers of brine. By 1841, 3,000,000 bushels of salt were being manufactured annually in the wells of Geddes, Liverpool, Salina, and Syracuse, the work giving employment to 3,000 men.

About this time, a great improvement was made in the manufacture of salt by the introduction of bittern pans, which enabled the manufacturer to do away with chemicals not wanted in pure salt. Long years afterward, it was found that these discarded chemicals had great commercial value and from them and from the salt itself are manufactured the products of the Solvay Process which now makes use of nearly all the brine produced in the Onondaga salt district. But by this time the whole industry was so far removed from agriculture that it need not concern us here.

Salt is produced in several other parts of western New York, both from brine and by mining, to the end that New York manufactures more salt than any other state in the Union excepting Michigan. It does not appear, however, that early settlers gave much attention to the manufacture of salt at other places than those in a radius of a few miles from Syracuse, although there were salt springs at Montezuma, Wayne county, Oak Orchard on Lake Ontario, and several rather weak springs on the east shore of Cayuga Lake from which some salt was evaporated. Salt, often subject to harsh taxation in the countries of the world, did not escape in New York, a tax of from two to four cents a bushel having been levied under the guise of inspection in all the early years of the industry, the total yielding a handsome sum to the State.

True enough, our ancestors suffered many hardships, but it does not appear that they deprived themselves of good cheer in drink when the ingredients could be obtained. They were zealous in matters of mind and soul, decency and order, and rigorous in their interpretation of conduct, but they did not teach nor practice denying the body. Quite universally they satisfied a reasonable thirst for spirituous liquors. Beer, cider, wine, rum, brandy, alcohol in any form "that maketh glad the heart of man" had a respectable standing. Until the temperance movement of the thirties in the last century swept over the country, the use of

alcoholic beverages did not go against the grain of public opinion and brewing and distilling were recognized as reputable occupations. To express an opinion on the drinking habits in other times and under other manners is touching delicate ground, and the matter must be discussed here from a purely agricultural standpoint—from the standpoint of hops and barley for beer, apples for cider, peaches for brandy, and grapes for wine.

Probably beer was brewed, much of it, in New Netherland, and the English who took the colony from the Dutch no doubt had their ale and beer. No very definite record of a brewery in New York appears until 1711. There then existed in the very heart of Manhattan a farm, or *bouwerie*, owned by Harman Rutgers, grandfather of the founder of Rutgers College. On this farm, near the present juncture of Maiden Lane and Gold Street, where now stand some of New York's most notable towers of stone and steel, in a neighborhood where no doubt the sound of the raider's axe in the modern speak-easy has often been heard, Rutgers built a brewery. The fact and the time are made certain by an entry (strange reading in this era of Volstead) under date of December 24, 1711, in Rutgers' Bible: "Today I brewed the first beer in my new Brewery. May the lord bless us in the work of our hands." Then and down to the Eighteenth Amendment and the Volstead Act, hops and barley were important crops in New York.

Although the culture of hops was early introduced by the Dutch in New Netherland, the industry did not assume importance in New York until 1800. In the early half of the nineteenth century Vermont produced seven-eighths of the entire crop in the United States, but beginning in the forties New York forged ahead with a production in 1849 of 2,536,299 pounds. By 1879, the industry had grown until the State was producing 21,628,931 pounds, grown on 39,072 acres. Hop cultivation the world over, for various reasons, is concentrated in well-defined districts, and beginning about 1880 new districts were developed in Wisconsin, Oregon, and Washington, and New York's crop began to go down, until in 1899 but 17,332,340 pounds were grown on 27,532 acres. By 1920, just before the passage of the Volstead Act, the industry had dwindled to almost nothing and since then



## SUSTAINING INDUSTRIES

hops have dropped out of sight as an agricultural crop in New York. In its height the growing of hops in New York was confined almost altogether to the region lying south of the New York Central Railroad between Rochester and Albany, with Madison, Onondaga, Otsego, and Chenango counties producing the largest yields.

Hop culture, even when the acreage is relatively small, becomes an important agricultural asset, because of a high investment and the considerable amount of labor required. The hills are usually placed seven feet apart each way so that there are from 700 to 900 hills per acre. The hop is propagated from cuttings from under ground stems, grubbed from the runners of established hills. Plants do not begin to yield until the second year, so that it is the custom to plant the hop with corn, potatoes, or beans, which permit clean cultivation. A yard attains its best condition in from two to four years, and is usually maintained from 8 to 12 years. The crop requires considerable pruning, high cultivation, heavy fertilization, much spraying for insects and diseases, and most of all much work in training. In New York, the system of training requires poles 20 to 24 feet long, at a cost of about 15 cents each. These are set in the ground two feet deep and in the spring the young vines are started up the poles with a spiral curve in the proper direction, tied loosely in places. One pole is usually set to each hill, two strands of twine from a point about five feet from the ground stretch to the top of the neighboring poles. The number of vines tied to a hill varies from 4 to 15 or more, two up the pole, two up each of the several strings.

Hops are gathered very largely by women and children, with a man attendant to carry the hops for several pickers. After picking they go to a dry-house, a tight building with a heater 14 to 20 feet above a slatted floor covered with open-mesh cloth. On this the hops are spread in a layer one to three feet deep and dried at a temperature from 125 to 200 degrees for about 12 hours. From the dry-houses the hops go to a cooling room where they are sweated. Two thousand pounds of cured hops per acre is the maximum crop. From all this it can be seen that hop growing makes use of a very considerable number of farm laborers.

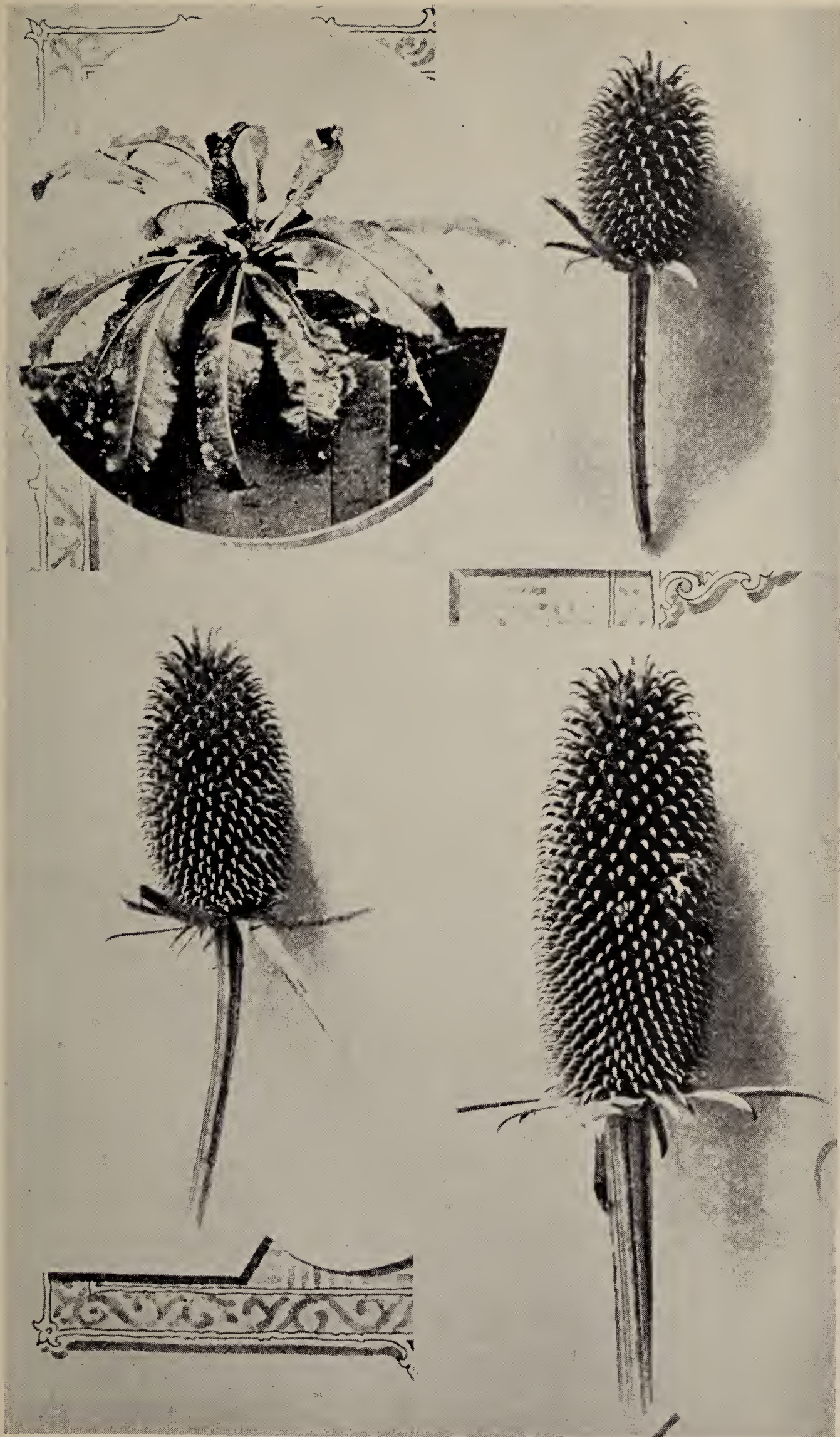
## A HISTORY OF AGRICULTURE

A discussion of hops naturally leads on to brewing and malting. These were indeed sustaining industries to farming a hundred years ago. At a time when every male adult drank brewed liquor freely, the consumption of beer and ale was enormous. The cost of transportation precluded its being brought any great distance, so that every community had need of brewing and malting houses. New York, however, not only supplied its own breweries with malt, but the product went by canal, river, and sea to other states in vast quantities. The malt houses had to be of special construction, were commodious, and involved investments of millions of dollars. Farmers brought barley to malt houses in hundreds of thousands of bushels. It was not an uncommon sight in western New York in the memory of men still living to see a line of farmers' wagons more than a mile long waiting to unload barley at malt houses.

The manufacture of distilled liquors, whiskey, and brandies in the eighteenth and nineteenth centuries was scarcely less important to the agriculture of New York—making the statement from the monetary and not the moral point of view—than the making of beer and ale. In 1845 there were 221 licensed distilleries in the State and many more unlicensed. A still in 1832 could be erected for from \$200 to \$1,000 from which 40 to 80 gallons of whiskey could be distilled per day. Malt from corn, rye, wheat, and oats was the main source of whiskey, used separately or in combinations. Brandies were made from peaches, grapes, and apples, the product of apples passing under the name of apple-jack. All inns and taverns, at least until the temperance movement of 1830 began, sold over the bar or served at meals beers, whiskies, rums, and wines. The manufacture of distilled liquors was hampered little or not at all by internal revenues until 1825 or somewhat later, and whiskey and brandy were sold at from 25 cents to a dollar a gallon. Despite the cheapness, the most profitable disposition that could be made of grains where transportation was costly was to send the crop to market in the form of whiskey. The market value of whiskey was quoted by farm papers a century ago as commonly as were the values of grains.

Every European traveler who visited the State, or the country north or south, remarked upon the great quantity and the high





THE TEASEL, SHOWING PLANT, BUTTON, KING, AND QUEEN





## SUSTAINING INDUSTRIES

quality of American fruit brandies, home-made or from the distilleries. Prospective immigrants from Europe to America were tantalized with glowing accounts of the ease with which "comfortable drinks" of distilled and fermented fruit juices could be obtained in the New World. New York, and it seems the other colonies as well, from time to time passed laws restricting the price of liquors so that, as William Cobbett said, you might "drink yourself blind at the price of a sixpence."

The growing of teasels, the flower heads of which are used by woolen manufacturers to raise the nap on cloth as the Greeks and Romans did centuries ago, was at one time an industry of considerable magnitude in Onondaga county. The head on the main stalk is called the "king," and produces male flowers; upon the same plant are 20 to 30 female flowers, "queens;" from lateral stalks are small heads, "buttons." In 1840 William Snook, a resident of Onondaga county, brought teasel seed from England and imported workmen to begin the culture of teasels in New York. The industry in the years that have followed has not spread beyond a radius of 10 or 15 miles from the place where it originated, but has until recent years been an important industry in Onondaga county. Teasels are still grown in America, but the industry is now largely confined to Oregon, where the plant is most happy in a congenial soil and climate. The average yield of heads to the acre is about 100,000, to care for which requires a good deal of labor, thus making the growing of teasels helpful to any rural community in which the industry flourishes. The price varied from 50 cents to \$2.00 per thousand. The minimum price was an unprofitable one and the maximum was reached in but occasional years. The crop requires two years to grow, and since the cost of handling is heavy and for one reason or another considerable losses are to be expected figures given as to yields and prices may easily lead astray as to profits.

Agriculture in New York has had several glorious sprees in speculation. Of these the wildest and most unique was the "silk craze" which afflicted the State and the country from 1824 to 1844. Efforts to produce silk in North America began first in

## A HISTORY OF AGRICULTURE

Jamestown, Virginia, at the instigation of the London Company and continued intermittently for 200 years, interest rising and falling, without making much to show in the way of silk until 1824 or thereabouts when here and there in several states silk was actually produced. Up until this time all efforts fell short of success because of the difficulty in growing the mulberry upon which the silkworms feed. Now it seemed that this obstacle was to be overcome.

The French had imported a new mulberry from the Philippines in 1824 which had an abundance of enormous leaves, food for the silkworm, and grew with amazing rapidity. It was said that the tree had originally come from China where for centuries it had been the food of the silkworm which produced the famous Chinese silks. The French called this mulberry *Morus multicaulis*, from its habit of sprouting at the base. In 1826 William Prince & Son, proprietors of the Linnæan Gardens and Nurseries, Flushing, Long Island, imported *Morus multicaulis* and began its propagation. It grew like a weed and its fame spread like wild fire. The time was ripe for the craze. Congress, in December, 1825, had directed legislative attention to the cultivation of mulberry trees and the breeding of silkworms. The following years the Secretary of the Treasury had prepared an illustrated manual of 220 pages on silk which was distributed in February, 1828. The legislatures of several states took action and books and pamphlets were issued by a dozen or more enthusiasts on mulberry and silkworm culture.

During the two decades of excitement over silk culture, the country supported at least four monthly magazines giving information on mulberry trees and silk. Two of these, the *Flushing Silk Journal* and the *Flushing Farmer and Silk Culturist*, were published in New York. Page after page, ream after ream, of such statements as the following, taken from the *Flushing Silk Journal*, appeared in the silk literature of the time:

"It has been proved that the utmost expense of producing raw silk does not exceed \$1½ to \$2 per pound, and that it readily commands in our market, from \$4 to \$5 per pound, and also that at \$3 per pound it may be exported to Europe and yield a handsome profit.

"Possessing, as we do, every variety of soil, and a climate of



## SUSTAINING INDUSTRIES

acknowledged superiority; with a population rivalling all other nations in skill and enterprize; what room is there left for doubt?

“Let each of us therefore commence operations by the erection of a cocoonery of a suitable size proportionate to the number of trees we possess, and provide ourselves with the necessary means to prepare our silk for market. The expense is so trivial compared with the great importance of the object and the certainty of profitable returns that every one should complete his arrangements without delay, and this being done, it will be soon ascertained that far more trees will be wanted than at present exist in the whole country. The quantity of raw silk necessary to be exported, in order to cover the largest annual importation of the manufactured article, would be about 8,000,000 of pounds, and worth \$25,000,000. To produce this quantity will require about 500,000,000 of trees whereas at the present time, we have not to exceed 12 to 14 millions, and not half that number that are worthy the name of trees. This deficiency alone it will require two or three years to supply. But the object that as Americans we should have in view is not to be bounded by the amount of our own consumption, as we have a far more brilliant consummation before us, which is to supply the whole continent of Europe with the raw material, whose annual consumption cannot amount to less than from seventy-five to one hundred millions of dollars.”

Our interest is in the mulberry nurseries rather than in the cocooneries and silkmills. Flushing, Long Island, maintained the largest nursery in New York, but wherever trees were grown for sale in New York, nurserymen speculated. Most of them gave up the growing of all trees that they might grow the mulberry, and in the first years many growers realized several hundred per cent profit on investments. Prices soared. The trees were easily propagated from hardwood cuttings so that the veriest tyro could multiply. Even so, at the height of the craze, multicaulis trees one year old sold for \$2.00 to \$5.00 each and the demand could not be supplied at these exorbitant prices. A tree was worth more than a pound of silk. Nurserymen made fortunes in a single season. It was said one nurseryman grew 30,000 trees on a single acre which he sold at a profit of \$35,000. Ministers, doctors, teachers, lawyers, merchants, farmers, and mechanics were seized

with the multicaulis fever which took the form of a frenzy before the crisis came. One writer thus describes the craze:

“They met in solemn conclaves over bundles of *Morus multicaulis* twigs, discussing seriously the glorious time when, in the not distant future, every farm should be a nursery for the young trees, every house have its cocooneries attached, its silkworms of the bivoltine, trivoltine, or polyvoltine breeds yielding two, three, or four crops of cocoons per year. The farmers’ wives and daughters, when not engaged in feeding the worms, were to reel the silk, and perhaps to spin and twist it, till silk should become as cheap as cotton, and every matron and maid rejoice in the possession of at least a dozen silk dresses. It does not clearly appear where and on what occasions they were to wear these dresses, while their whole time was to be occupied with the care of the silk-worms and cocoons.”

The fury of this speculation did not begin to subside until the spring of 1839; by fall, the boom had almost completely collapsed. Ruin stared multicaulis cultivators in the face in every part of the country where the trees were grown. Two troubles put a stop to the culture of the multicaulis mulberry: a disease impossible to control appeared; and it turned out that the trees could not withstand the cold of New York winters even on mild Long Island. In the spring of 1840, mulberry trees went begging for purchasers at a penny each—their value was wholly artificial. A cold winter in 1844 wiped out the few remaining mulberries of this species and the finishing touches were thus put on the amazing episode of mulberry culture. Later it turned out that other species of the mulberry could be grown to feed silk worms, but it was so difficult to master the technic of silk culture and so impossible to compete with the cheap labor of China, Japan, and Europe that a silk industry could not be established anywhere in America. A bounty on raw silk was ineffective in keeping the infant industry alive. In five years, 1836 to 1840, \$2,430 was paid out on 14,160 pounds of cocoons, 956 pounds of raw silk, and 344 pounds of thrown silk.

Passing from silk to hemp and flax one finds that these crops have been subjects for experiments in New York from the earliest settlements down to the present time. Hemp in the colonies was



## SUSTAINING INDUSTRIES

in great demand for naval stores and commercial shipping and a sufficient supply was never at hand. In general, however, hemp has never been very successfully grown in the Atlantic seaboard states. New York after the Revolution grew hemp in a small way, but when the western states, Kentucky, Ohio, Indiana, and Missouri, became agricultural regions, New York was forced to give up hemp culture as an agricultural staple. At one time or another, however, much land and money have been devoted to hemp in New York, farmers in nearly every agricultural period having been determined to grow it as one of their standard crops. Soil, climate, and labor conditions are adverse and finally all efforts came to naught.

From the first English settlements until well after the Civil War, flax was grown more or less in New York. In the Holland Documents of the New York Historical Society flax seems not to be mentioned, but Denton, who gives an early account of the English in New York, says, "they sowe store of flax, which they make every one Cloth of for their own wearing." It is to be supposed that at first clothes brought from England and furs furnished the chief supply of clothing, but as soon as the colonists attempted a self-sufficient agriculture the cultivation of flax was undertaken. No doubt the coming of Scotch-Irish immigrants in the early eighteenth century, who are said to have introduced the linen-spinning wheel, greatly stimulated the culture of this crop. According to the accounts of all early travelers in New York and New England, the home plat of flax, with a surplus for sale, was a part of every northern farm. Flax was grown not only for home use but could be relied upon for ready cash. The seed was crushed in local oil-mills and both seed and oil were exported to Europe. Oil cake, then as now, had value as a cattle food.

Most of the flaxseed from New York went to Ireland. In the years 1790 to 1794 the average annual exports of flaxseed from New York and New England were 241,000 bushels. In 1748, Kalm, writing of the commerce of New York, says:

"They send ships to Ireland every year, laden with all kinds of West India goods; but especially with linseed, which is reaped in this province. I have been assured that in some years no less than ten ships have been sent to Ireland, laden with nothing but

## A HISTORY OF AGRICULTURE

linseed; because it is said the flax in Ireland does not afford good seed. But probably the true reason is this: the people of Ireland, in order to have the better flax, make use of the plant before the seed is ripe, and therefore are obliged to send for foreign seed; and hence it becomes one of the chief articles in trade. At this time a bushel of linseed is sold for eight shillings in New York currency, or exactly a piece of eight."

Household industries, of which spinning was chiefest, began to decline early in the nineteenth century and soon cloth for all purposes came from woolen and cotton mills. By the middle of the century, nearly all of the spinning-wheels and hand-looms had found resting places in attics. Cheap cotton from the slave states and Whitney's cotton-gin brought about the ruination of northern flax-growing and linen-making. However, in 1844 the United States Census reports 46,000 acres of flax for New York, so that flax-growing was still a very considerable farming industry in the State as late as that date. A decade later this area had decreased to 13,000 acres. There was a period of revival during the Civil War when cotton was unobtainable, and in 1864 18,000 acres of flax were grown in the State. After this date, flax all but disappears from New York's crop statistics.

There are many more examples in the history of New York of crops tried out with enthusiasm by farmers, their culture recommended by the press and public spirit, to provide means of utilizing land, labor, and capital, which, slightly less spectacular than the *Morus multicaulis* speculation, came up against affrighted nature and ended in naught. The Shakers tried to make opium from the poppy; madder has been grown as a coloring matter; ginseng, soybeans, peppermint, cowpeas, willows, Japanese clover, spelt, sorghum, and spurry have had their brief day. Broom corn was a special crop which was grown in small patches on many farms in New York until about 1850, when Ohio, Indiana, and eventually Illinois and Iowa began to outstrip all competitors. A few farmers grew broom corn in a large way; one farmer near Schenectady planted 200 acres in 1845. Much was expected from broom corn since it furnished a cash crop and gave winter employment on the farm in the making of brooms.



## CHAPTER VIII

### TURNPIKES

**H**ISTORIANS have ever considered the existence of roads as a line of demarcation between the civilized and the savage state of society. Agricultural writers regard excellence in highways as one of the best criteria of the standing of agriculture in a country. One sees at once that there is an inseparable connection between roads and agriculture and for that matter between roads and the arts and commerce of a country. Colonial New York made few advancements in the building of roads, but relied almost wholly on waterways. The first great improvement made when New York became a State was the opening of roads. The legislature from time to time made liberal grants of money and authorized many lotteries to furnish money for the construction of roads and bridges. Before the end of the century, however, it was found that lotteries and the State's resources were quite inadequate to satisfy the demands. Speculative minds, and there were many, devised the plan of building turnpikes out of private capital, with the expectation that the tolls would make profitable returns on the money invested. The plan seemed pleasing to the people of the State and soon turnpikes were being built with private capital in every settled part of New York. A great number of companies were incorporated and millions were invested in stock. The immediate effect was to encourage the opening of settlements; to make more profitable the production of crops; to increase the products of agriculture; and to facilitate every species of internal commerce, thus indirectly further stimulating agriculture.

Agricultural produce in New York in its first century and a half was chiefly sent to market over the Hudson, the Mohawk, the Sound. Land traffic—there was little of it—was by oxcart, horseback, and tedious travel on foot; then followed in rapid succession the stagecoach, the canalboat, the railway train, the motor, with the airplane just ahead of us. Those of us who have seen the

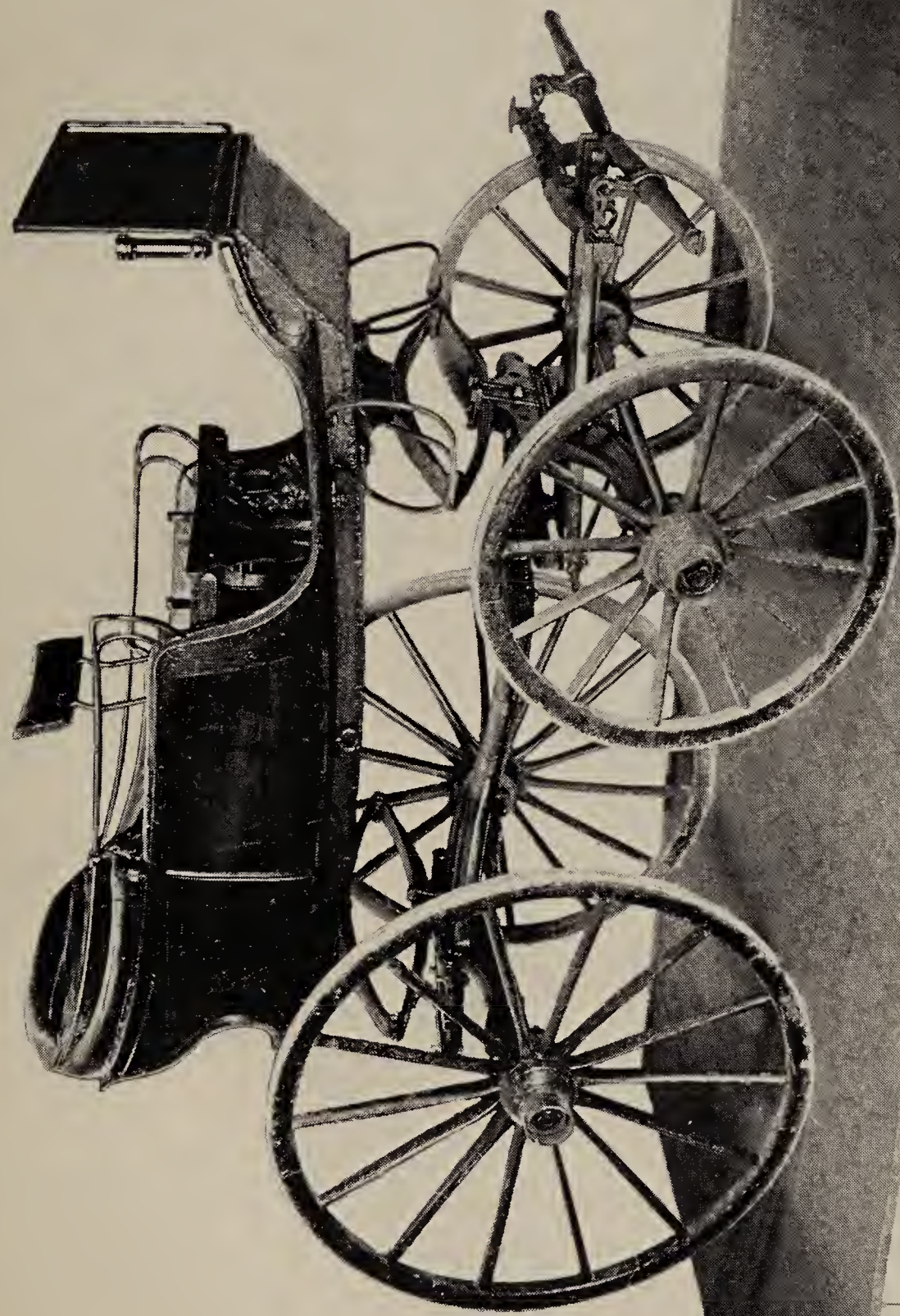
## A HISTORY OF AGRICULTURE

automobile and the motor truck usurp the trade of the railroad and the trolley know at first hand what tremendous transformations in every phase of agriculture a change in method of transportation brings about. The stagecoach, the canalboat, the locomotive, in turn, produced changes just as revolutionary as those now in progress through the introduction of motors and airplanes. Historians time and again have analyzed the conditions of life which each type of travel has determined and have shown that each sets the rhythm for the age in which it is dominant.

Most of the roads in the State, as in the whole country, were mere dirt tracks until well on into the nineteenth century. In the spring and fall transportation was almost impossible because wagons mired to the hubs and two, three, and four teams were required to move even moderate loads of farm produce. In winter it was not so bad, and a good deal of the hauling was done with sleighs; in summer sand and dirt made heavy roads. Previous to 1800, military roads in Europe had been made from the days of the Romans out of blocks of stone, but in 1800 McAdam, a Scotchman, tried the daring experiment of using crushed stone for the surface, out of which came his invention of the McAdam road, and rural communication was vastly improved. But both the Roman stone roads and McAdam's were too expensive for America until recent years.

During the reign of Queen Anne, 1702 to 1714, the Assembly of the Colony of New York appropriated the sum of 500 pounds to John Smith and some other persons for the purpose of constructing a public road leading from New York to the West. The appropriation was coupled with the conditions that within two years from the time of the passage of the act the beneficiaries should have constructed a road, wide enough for two carriages to pass, from "Nyack on the Hudson to Sterling Iron-works," a distance of 20 or 30 miles; and that they should cut away the limbs of trees over the track so as to allow carriages to pass. This was the beginning of the internal improvement system of the State of New York. There were occasional appropriations in the Colony for roads from this on until the Revolution, when some military roads were built, but real road building did not begin in the State until after the Revolution.





THE CARRIAGE IN WHICH GENERAL LAFAYETTE RODE FROM CANANDAIGUA TO GENEVA IN 1825





TURNTPIKES

A journey from the eastern to the western part of the State in the early part of the nineteenth century was long and tedious, and required several modes of conveyance. How long and how tedious is shown by the itinerary of Dr. Jeremy Belnap who passed through New York from east to west on a journey from Boston to Niagara in 1796 to inspect a Mission established among the Oneida Indians by the Society for Propagating Christian Knowledge. It took him just a few days less than one month to make the trip from Boston to Niagara. His time-table follows:

In the stage, which sets out from Boston on Monday and Thursday mornings, you go the

	Miles	
First day to Brookfield.....	66	
Second day to Northampton.....	34	
Third day to Pittsfield.....	40	
Fourth day to Albany.....	40	
	—	180

Here you may rest, and from hence proceed on any day, forenoon or afternoon, to Schenectada..... 16

Thence you may go either in the stage-wagon by land, or in boats up the Mohawk river. The former is accomplished in less time than the latter. The stage goes every Tuesday and Friday morning,—

The first day to Canajohara.....	40	
The second to Whites-town.....	46	
Here the stage ends.	—	102

From Whites-town to Fort Stanwix is a wagon-road, and wagons may be hired..... 12

Fort Stanwix is situate on the upper waters of Mohawk River, from which is a portage to Wood Creek, where a Canal is now making..... 2

Thence by water, down Wood Creek to Oneida Lake .....	27	
Across Oneida Lake to Fort Bruington.....	35	
Down the river to Oswego Falls.....	12	
Portage 150 feet. Thence to Oswego Fort on Lake Ontario .....	12	
Thence through the lake to Niagara.....	160	
	—	260

## A HISTORY OF AGRICULTURE

The magnitude of the road making undertaken by the new State can be gauged best by a statement of miles of road built and capital invested. Benjamin DeWitt in an admirable article published in the *Transactions* of the Society for the Promotion of Useful Arts in 1807 lists 88 incorporated turnpike road and bridge companies, with a capital of more than five and one-half million dollars, all of which came into existence within the brief space of seven years. These turnpikes as incorporated covered more than 3,000 miles and required the building of 20 large toll bridges. Probably no figures which could be given show in a more striking manner the rapid progress New York was making in prosperity, enterprise, population, commerce, wealth, and in particular in the development of agriculture, than in the building of these roads. The following figures, taken from DeWitt's article, gives an idea of the location of these turnpikes and a statement of the capital stock of the companies and the distances traversed:

	Capital stock	Length of road, miles
First Great Western turnpike road...	\$180,000	52
Columbia .....	25,000	20
Rensselaer and Columbia.....	32,000	28
Eastern (with a diverging road)....	50,000	40
First Northern .....	90,000	60
Seneca (two roads).....	177,500	112
		45
Susquehannah .....	116,000	80
Orange .....	21,000	25
Mohawk .....	190,000	80
Westchester .....	25,000	10
Newburgh and Cochection.....	80,000	60
Chenango .....	64,000	65
Oneida .....	30,000	25
Union .....	50,000	30
Stephentown .....	8,000	10
New-Windsor and Blooming-grove..	7,500	10
Second Great Western.....	50,000	45
Flushing and Newtown.....	15,000	5
Quaker-hill .....	10,000	10





TURNPIKES IN WESTERN NEW YORK IN 1809  
Drawn by Simeon De Witt, 1809





# TURNPIKES

	Capital stock	Length of road, miles
Albany and Schenectady. ....	140,000	14
Troy and Schenectady. ....	60,000	15
Hudson branch. ....	20,000	10
Ulster and Delaware. ....	125,000	110
Dutchess. ....	60,000	35
Schoharie. ....	78,000	60
Newtown. ....	30,000	20
Canandaigue and Bath. ....	50,000	35
Third Great Western. ....	105,000	90
Ancram. ....	24,000	20
Susquehannah and Bath. ....	300,000	100
Albany and Bethlehem. ....	30,000	5
Fall-hill turnpike and bridge. ....	12,500	15
Chatham. ....	10,000	10
Coxsackie. ....	41,000	25
Albany and Delaware. ....	150,000	75
Little Delaware. ....	100,000	60
Lake Erie. ....	200,000	130
Fourth Great Western. ....	40,000	30
Hillsdale and Chatham. ....	35,000	20
Cayuga. ....	175,000	120
Ontario and Genesee. ....	175,000	90
Onondaga salt spring. ....	100,000	55
Great Northern. ....	150,000	130
Delaware. ....	75,000	50
Newburgh and Chenango. ....	162,000	80
Neversink. ....	162,000	80
Popachton. ....	210,000	90
Plattsburgh and Chateaugay. ....	55,000	40
Utica. ....	30,000	30
Rome. ....	20,000	20
Greenfield. ....	26,000	20
Farmers'. ....	100,000	35
Ulster & Delaware First branch. ....	40,000	25
Waterford and Whitehall. ....	150,000	60
Waterford. ....	60,000	40
Newburgh and New-Windsor. ....	5,000	5
Schenectady and Ballstown. ....	2,000	5
Unadilla. ....	62,500	40

A HISTORY OF AGRICULTURE

	Capital stock	Length of road, miles
Jamaica and Rockaway.....	20,000	15
Canajoharie and Charleston.....	30,000	20
Hamilton and Schaneateles.....	84,000	70
Mohawk bridge and Ballston.....	40,000	20
Highland .....	250,000	110
New Baltimore & Rensselaerville....	20,000	20
Mexico .....	50,000	50
Middle-burgh & Rennselaerville.....	15,000	15
Albany and Greene.....	40,000	35
67 turnpikes		
21 bridges		
	<hr/>	<hr/>
	\$5,141,750	3,071
Bridge stock as above.....	415,000	
	<hr/>	
88 Companies .....	\$5,556,750	

The building of highways made necessary the construction of new bridges, the erection of toll bridges, and the construction of many accessories, such as inns, blacksmith's shops, and stabling facilities for horses. As to the value of these accessories we can only guess as is the case with the tolls that would arise from the construction of toll bridges. We have, however, a list of the bridges owned by companies and the capital stock of companies in the year 1807. The list follows:

Toll bridges	Capital stock
Schoharie-kill bridge .....	\$10,000
Catskill .....	5,000
Cayuga .....	25,000
Canajoharie and Palatine.....	10,000
Jericho .....	10,000
Troy .....	150,000
Union .....	50,000
Fort-Miller .....	40,000
Newtown and Bushwick.....	7,500
Montgomery .....	13,500
Schoharie and Cobleskill.....	6,000



## TURNPIKES

Toll bridges	Capital stock
Fort-Hunter .....	7,500
Schoharie-creek North .....	5,000
Wallabought and Brooklyn.....	15,000
Delaware .....	20,000
Susquehannah .....	20,000
Canton .....	6,000
Farmers' .....	3,000
Cohoes .....	7,500
Jefferson .....	4,000
Mohawk (stock included in Mohawk turnp.) .....	4,000
	\$415,000

The first proprietary stage line in New York seems to have been begun in June, 1785, and ran from New York to Albany on the east side of the Hudson river. The builders and proprietors were Isaac Van Wyck, John Kinney, and Talmadge Hall, tavern keepers in the order named at Fishkill, Kinderhook, and New York. To these men, the State Legislature gave exclusive right to run stages on their road for 10 years. The charter provided that the proprietors were to "furnish and provide at least two good and sufficient covered stage wagons to be drawn by four able horses." Further, the proprietors were to "proceed at least once in every week" and were to charge not more than "4 pence a mile, including the liberty of carrying 14 pounds weight of baggage." The penalty of infringement of their rights by other stage owners provided by the State laws was a fine of 200 pounds sterling. The only competition was from sloops on the Hudson. But the Hudson was frozen in winter, and the sailing craft were uncertain in summer. With the best of winds and luck the passage from New York by sail required from two to four days and with adverse winds might require 10 days. Besides squalls made the river trip more or less dangerous.

This first stage road on the east side of the Hudson was maintained with few changes until about 1812 when steamboats made it unprofitable, whereupon the road passed into the hands of the State. The fare between Albany and New York at the beginning was \$10, but shortly dropped to \$8, and in 1796 came down to

## A HISTORY OF AGRICULTURE

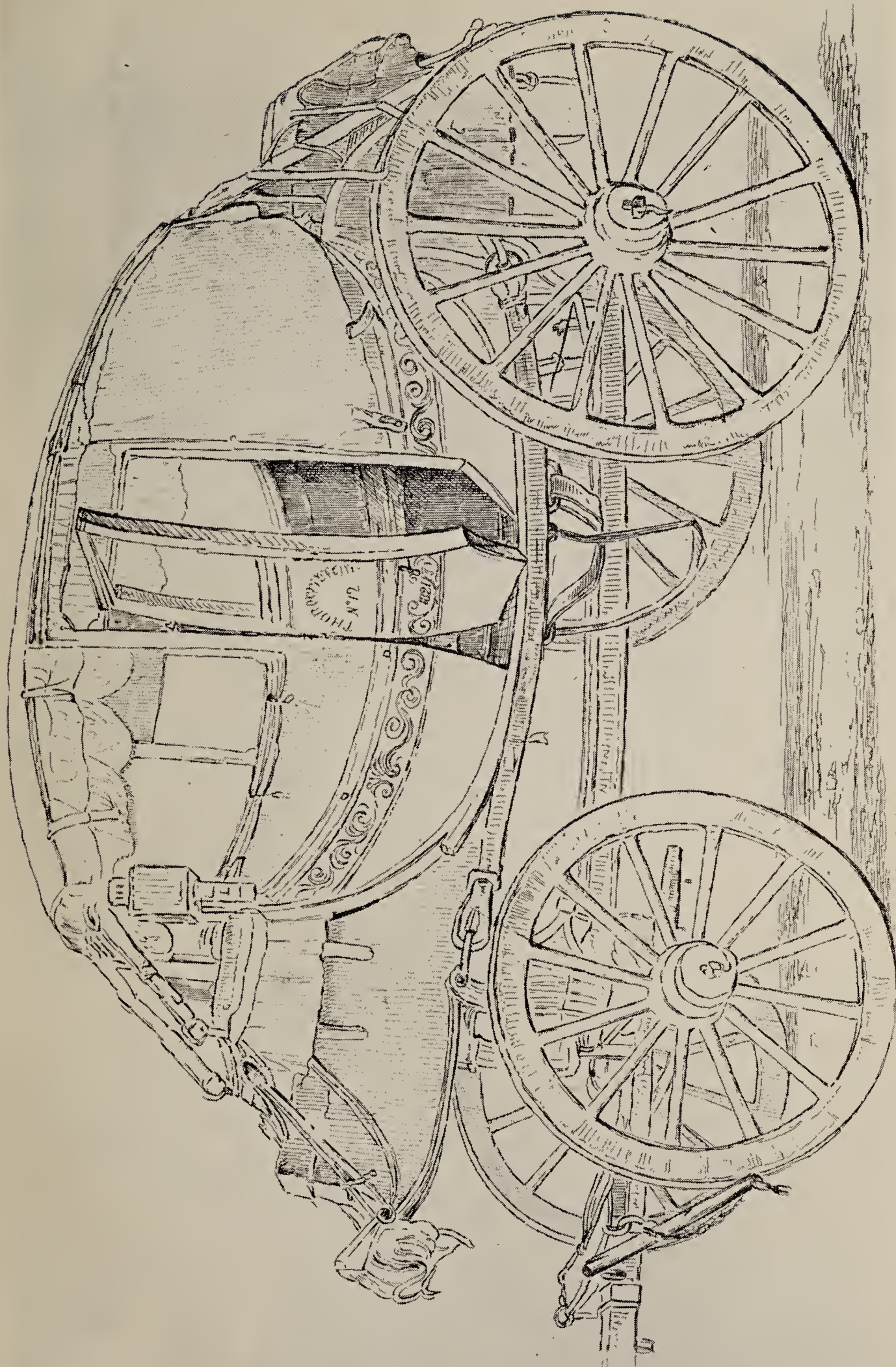
\$6. Besides carrying passengers, the proprietors had a mail contract with the United States Post Office Department which added a handsome sum to the income of the road. Carrying mail then as now gave the carrier right of way and greater assurance of regularity in making trips. Albany and New York newspapers were distributed along the route to taverns and post offices. In 1806, The Highland Turnpike Company, which owned the road from King's Bridge in New York City to Poughkeepsie, was given a new charter and permitted to rebuild its road between Peekskill and Fishkill, with some changes in taverns and towns to be served. The road as thus established became the New York and Albany Post Road, followed, with some straightening out of twists and turns, by automobiles today.

There were several types of stagecoaches, of which there are many descriptions by travelers of the time. Perhaps as common a type as any was described by Duncan, an English visitor, who came up the Post Road in 1823:

"The body is rather long in proportion to its breadth, and contains four seats, each holding three passengers who all sit with their faces towards the horses. From the height of the seats it is open all round, and the roof is supported by slender shafts rising up at the corners and sides; in wet weather a leathern apron is let down at the sides and back, to protect the inmates. The waggon has no door, but the passengers get in by the front, stepping over the seats as they go backward; the driver sits on the front seat with a passenger on either hand. The heavier kinds of boxes and trunks are fastened behind, upon the frame of the carriage, but the smaller articles and the mail bag are huddled under the seats in the inside, to the great annoyance of the passengers, who are frequently forced to sit with their knees up to their mouths, or with their feet insinuated between two trunks, where they are most lovingly compressed whenever the vehicle makes a lurch into a rut. The body of the waggon is suspended upon two stout leathern straps, passing lengthways under it, and secured upon strongly propped horizontal bars before and behind."

The New York and Albany Post Road was a success from the start. Stages ran twice a week, making the through trip in three days, but after the first year three trips were made a week, the





A STAGECOACH  
From an etching by Basil Hall, 1829





## TURNPIKES

through time being two days. Tavern keepers along the road eventually came in as additional partners, so that there might be a partner in a tavern for each meal of the day and for the night's lodging. The tavern-keeping partners also furnished teams from tavern to tavern. Stagecoaches left the terminals of the road at 5:00 o'clock in the morning. The starting place at the Albany end of the route was the ferry landing opposite Albany; at the New York end Cape's Tavern. Passengers from Albany had breakfast at Kinney's Tavern in Kinderhook, luncheon at Rhinebeck, supper and lodging at Fishkill. Passengers from New York ate breakfast at Hall's Tavern, the historic house now known as the Jumel mansion; dined in Peekskill; ate supper and slept in Fishkill. The next morning each stage traveled back over the road it came, making the same stops.

The success of the Post Road on the east side of the Hudson stimulated the building of similar roads on the west side, but none on the west side gained the prominence, were so well patronized, or were nearly so profitable as the New York and Albany Post Road. In 1797 the State gave a charter to Anthony Dobbin and James Tustin of Goshen to run stages between Goshen and New York City. A little later the same men became the incorporators of a line known as the Orange Turnpike running between Monroe Iron Works and the New Jersey line. In 1803, a group of seven men were given a charter to run stages from Albany to the northern boundary of New Jersey on the west side of the Hudson river. The charter provided that the company was to furnish "at least four good and sufficient covered stage-waggon;" was not to charge more than five cents for every mile; and that the road was to be maintained by the company for seven years. This road was opened in 1803 with stages running every Sunday, Tuesday, and Thursday at three o'clock in the afternoon from Hoboken, through Hackensack, Goshen, Wardsbridge, Kingston, Catskill, and Coxsackie to Albany. The through fare was \$8. Service continued much the same until 1814, when there were changes in the route, the equipment, the fare, and the time, the beginnings of many improvements and changes.

As time passed, rival companies sprang up on both sides of the river. Fares were lessened and the time was cut so greatly by

## A HISTORY OF AGRICULTURE

competing companies that the lives of the passengers were sometimes endangered. Thus, there appears in the *New York Evening Post* of February 7, 1822, a thrilling account of a race between two competing stages with passengers inside and out. A passenger coach of one line traveling toward New York City was overtaken near the New Jersey line by the mail coach of a rival, the driver of which crowded the passenger stage off the turnpike, upset it, so that vehicle and passengers were dragged some distance before the stage could be stopped. Five passengers and the driver were seriously injured in spite of which the victorious coach kept on at full speed and came with great acclaim to the New York terminal.

Stage drivers and teamsters owned the road and showed little courtesy to other travelers on wheels. A carriage was a sign of aristocracy and nothing could please a coach driver or company freight teamster, sons of liberty in the new Republic, more than to break a shaft, pull off a wheel, or tumble over a buggy or gig driven by some opulent townsman. The driver of a light vehicle must always draw off the road to let the stagecoach pass. The loud-mouthed drivers of coaches or of the great, gaudily painted, boat-shaped freight wagons carrying two tons of flour, pork, or other produce dominated the road.

Albany, at the head of navigation on the Hudson, became the center of stagecoach lines east, west, and north. Ananias Platt, a tavern keeper in Lansingburg, was given a charter in 1790, for a stage road between Albany and Lansingburg by the way of Troy. His business grew apace, and, in 1796, 20 stages were running daily under his management between these and neighboring towns. The first road to the west from Albany was built by Moses Beal, a tavern keeper in Schenectady, in 1793, from Albany through Schenectady, up the Mohawk Valley to Canajoharie. Later he was joined by two partners, and the company took over a mail contract from the United States Government, after which the partners held the road for some years against all competition. As a hub from which many turnpikes and post roads radiated, Albany was the marketplace for the farms of northern and western New York. After every harvest her warehouses were running over with wheat, corn, and rye from the fertile



## TURNPIKES

flats of the Mohawk and the rich virgin lands of the distant Genesee country.

A stage service from Albany to Geneva was put on in 1797 by John House and Thomas Powell, tavern keepers at Utica and Geneva. In 1803, Jason Parker and Levi Stevens were given a charter for a road from Utica westward, and in 1804 their charter was extended and right strengthened to the exclusion of all other roads from Utica to Canandaigua for 10 years. By the terms of the charter there were to be two stages a week, making the through trip in 24 hours; the charge was not to be more than five cents a mile.

In 1807, John Metcalf was given a charter by the Legislature which gave him monopoly of the route between Canandaigua and Buffalo, but through stage service from Albany to Buffalo was not finally in operation until 1811. North and east from Albany, stage lines radiated to take care of the trade to Vermont, Lake Champlain, and Massachusetts. The first road to the north was built in 1796. Eventually, this northern route bifurcated at the St. Lawrence, one fork going east to Montreal, the other west up the St. Lawrence to Ogdensburg, Sackett's Harbor, Oswego, and west through Rochester and over the Ridge Road to Niagara Falls. Over this northern route many New Englanders came to settle the western part of the State or passed on to Ohio and the distant West. As early as 1793 the Berkshires had been crossed by a stage route from Albany to Boston. This venture was considered a great advance in road building since it was the first time in America a stage road had crossed a range of mountains. The carrying of freight as well as of passengers over these roads must have been profitable. DeWitt Clinton, in a journal kept of a trip to western New York in 1810, says of the freight traffic:

"The large wagons carrying 40 or 50 hundred weight, go from Geneva to Albany for \$3 a hundred, carrying and returning with a load, which makes about \$6 a day, as they consume 20 days out and home. They make 13 trips in a year and find it profitable two-thirds of the time. They generally use five horses; the rims of the wagons are six inches broad, and one has nine inches and six horses. They have selected taverns by the way which furnish them with provender nearly at prime cost."

## A HISTORY OF AGRICULTURE

The Post Road from Albany to Buffalo, through Utica, Auburn, and Geneva, was for 50 years the main artery for west-bound immigrants and for east-bound drovers and freighters of farm produce. The building of the Erie Canal seemed to have affected traffic on this famous pike but little, but the New York Central Railroad quickly put it out of business. The turnpike was a toll road with toll gates about every six miles. Most of the toll-gate keepers retired as rich men—it was said they made an equal division of the moneys received for the toll companies. During the war of 1812, General Scott and General Wood passed over this turnpike and the road echoed to the tramp of 3,000 soldiers under their command on the way to the Niagara frontier. With the charter of this road in 1804, the State gave a right of way of 120 feet of land, the first grant of land made in New York for a road right of way. The charter names the route as the Seneca Turnpike, but "Genesee Pike" was more commonly used by the people who passed over it. Possibly the road was at its best, and certainly its greatest day was in 1825, when Lafayette traveled eastward on his triumphant tour of the country.

The first cost of the Seneca Turnpike could not have been great, since the capital stock was but \$15,000. It reached Canandaigua in 1808, which was then the largest town in New York, west of Utica. Syracuse at this time did not exist in name, and so far as the pike was concerned was but a place where the coach driver watered his horses. It was not completed to Buffalo until 1813. The rate of fare was governed by the charter, and was not to exceed six cents per mile, with an allowance of 50 pounds of baggage and no more than 12 passengers to each coach. The coaches were required to travel at least six miles per hour and must carry the United States mail. All negroes were required to ride outside with the driver. There was supposed to be danger from robbers, and the driver was compelled to carry a brace of pistols and a knife—conditions set forth in the charter. For 37 years, the road paid a 10 per cent dividend to its stockholders, but with the completion of the New York Central Railroad the old pike gradually lost revenues until they were not sufficient for its maintenance. In 1847 the company surrendered the charter to the State.

No doubt the Seneca Turnpike was one of the great roads of





CAYUGA LAKE BRIDGE  
From an etching by Basil Hall, 1829





## TURNPIKES

its day in New York, and it served its purpose well as an outlet for the farmers of western New York, but in the eyes of John M. Duncan, a Scotchman, who visited the State in 1818, the road, pride of its builders and of the people who traveled it, was in part, at least, pretty bad. Duncan passed over the Seneca Turnpike in 1819 from Albany to Buffalo, and could say little that was commendable of its construction. He found the corduroys through swamps especially trying. He writes:

“A wearisome swamp intervenes between Waterloo and the Seneca Lake, and a yet more wearisome log causeway affords the means of crossing it. This substitute for a road is composed entirely of the trunks of trees, laid down layer above layer, till a solid but rugged platform is elevated above the level of the marsh. The logs are piled upon each other without any kind of squaring or adjustment, and the jolting of the wheels from one to another is perfectly horrible. Bad however in the superlative degree as such riding is, it was connected in the present instance with additional circumstances of annoyance, not usually attendant. By the heavy and long continued rains the swamp had been converted into a lake, which gradually rising in height had at last completely covered the wooden road. Night had sunk down upon us, and though there was a glimmering of moonlight, it had to struggle through a dense atmosphere of clouds; our charioteer, however, feeling secure in his knowledge of the *channel*, drove dauntlessly forward, the horses dashed into the water, and very soon our bones bore testimony to the correctness of his pilotage. Well was it for us that the driver's skill was not inferior to his daring, for had he gone to either side of the proper line, horses and waggon, with all that it contained, would probably have found in the marsh their last earthly resting place. Two or three times it seemed as if such a consummation was approaching:—several logs had floated out of their places and left yawning gaps in the causeway, across which our horses might be said to swim rather than walk, and the wheels followed them with a plunge, so sudden and so deep, that it felt as if the bottom of the road had literally fallen out, and our whole establishment were going after it.”

Cayuga bridge, over a mile long, built across Cayuga Lake in 1797 to carry westward caravans of pioneers, was one of the

marvels of engineering in building the Seneca Turnpike. The bridge fell in 1804, was rebuilt in 1812, and was finally abandoned in 1857. It was acclaimed throughout the State at the time of its building as the "longest bridge in the world," a boast not to be admired and yet to be forgiven for the bridge was concrete proof of the mechanical skill and the enterprise which even then were characteristic ingredients of the American people.

Cayuga bridge was finished September 4, 1800, by the Manhattan Company. It was one mile and eight rods long, 22 feet wide, and 22 feet between trestles. It was built in 18 months and cost \$150,000. The Cayuga Bridge Company, consisting of John Harris, Thos. Morris, Wilhelmus Mynderse, Charles Williamson, and Jos. Annin, was incorporated in 1797. This bridge was generally taken as the dividing line between the East and the West.

The old highways carried no stone bridges, the first of such structures in America being the Rochester aqueduct which was begun in 1820. Bridges of earliest construction were supported by piles. Pile bridges, however, were objected to by those who used the river for traffic and almost wholly stopped floating lumber rafts or broad-beamed barges. To do away with piles, the wooden truss bridge was invented, and from 1810 came into use for all large bridges on the turnpikes of the State. Their timbers left exposed to wind and water quickly decayed; to obviate such exposure covered bridges were built and were familiar sights until in comparatively recent years they have been supplanted by uncovered iron bridges.

The Seneca Turnpike from Albany west was to Ohio and the regions beyond what the ancient Via Appia was to the country south of Rome. In its earliest days so many immigrants to Ohio passed over the road that it was sometimes called the "Ohio Trail," and so was confused with the Indian and Early French and English trappers and traders trail, who gave the name "Ohio Trail" to quite a different route. The trek and trudge over the old turnpike was so continuous, says one writer, that east-bound travelers journeying against the immigrant tide were hard put to it to keep their right of road. The traveler east was always in sight of wagon trains, pack horses, and long files of covered



## TURNPIKES

wagons. The traveler west had to contend with droves of cattle, sheep, pigs, and files of heavily loaded freight wagons.

The eastern end of the Ohio Trail of the aborigines was the Indian landing on Irondequoit Creek. The western terminus of the portage around the falls of the Genesee was in the present city of Rochester. Indians first, and then the French, followed the Ohio Trail from Lake Huron down the Genesee, portaged across to the Allegheny, then down to the Ohio, and on to the Mississippi, St. Louis, New Orleans, and the Gulf. La Salle, in 1669, sought in vain the secret of this trail from the Senecas. Discovered later, it was for a century an important trade route of the French from Canada to the Mississippi Valley, but was seldom used by the early white settlers in western New York.

The main stage routes for travelers westward was the Seneca Turnpike, but a little way to the south there was the Great Western Turnpike, a mail and freight line which ran from Albany by way of Cherry Valley to Cooperstown, Richfield Springs, Bridgewater, Cazenovia, Auburn, Geneva, and Canandaigua to Buffalo, the route of the Cherry Valley automobile road of today, Route 20. As we know it, it is a broad ribbon of gray concrete and black asphalt over hill and down dale. For 50 years it was a dirt stage road. Then for 75 years it was nearly grass-grown. The Great Western was a shorter route from Albany to Buffalo than the Seneca Turnpike. Travelers preferred the Seneca from Albany to Buffalo because it was a level road following the Mohawk Valley through central New York and avoiding the hills to the south. A glance at the map shows that the Great Western ran almost due west from Albany to Buffalo. Over it, most of the surplus farm products of central and western New York went to market; over it were driven droves of cattle, sheep, and pigs from as far west as Ohio; over it to the markets in Albany went huge freight wagons piled high with bags of potash, or slatted racks of charcoal, or heavily laden with barrels of whiskey, or leather from western crossroad tanneries; Canastota wagons carried salt from Salina to Albany, thence to the east and the south. The westward files of wagons were loaded with cargoes scarcely less varied—stores for the grocers, clothier, milliner, stationer, and vast quantities of horseshoe iron, nail rods,

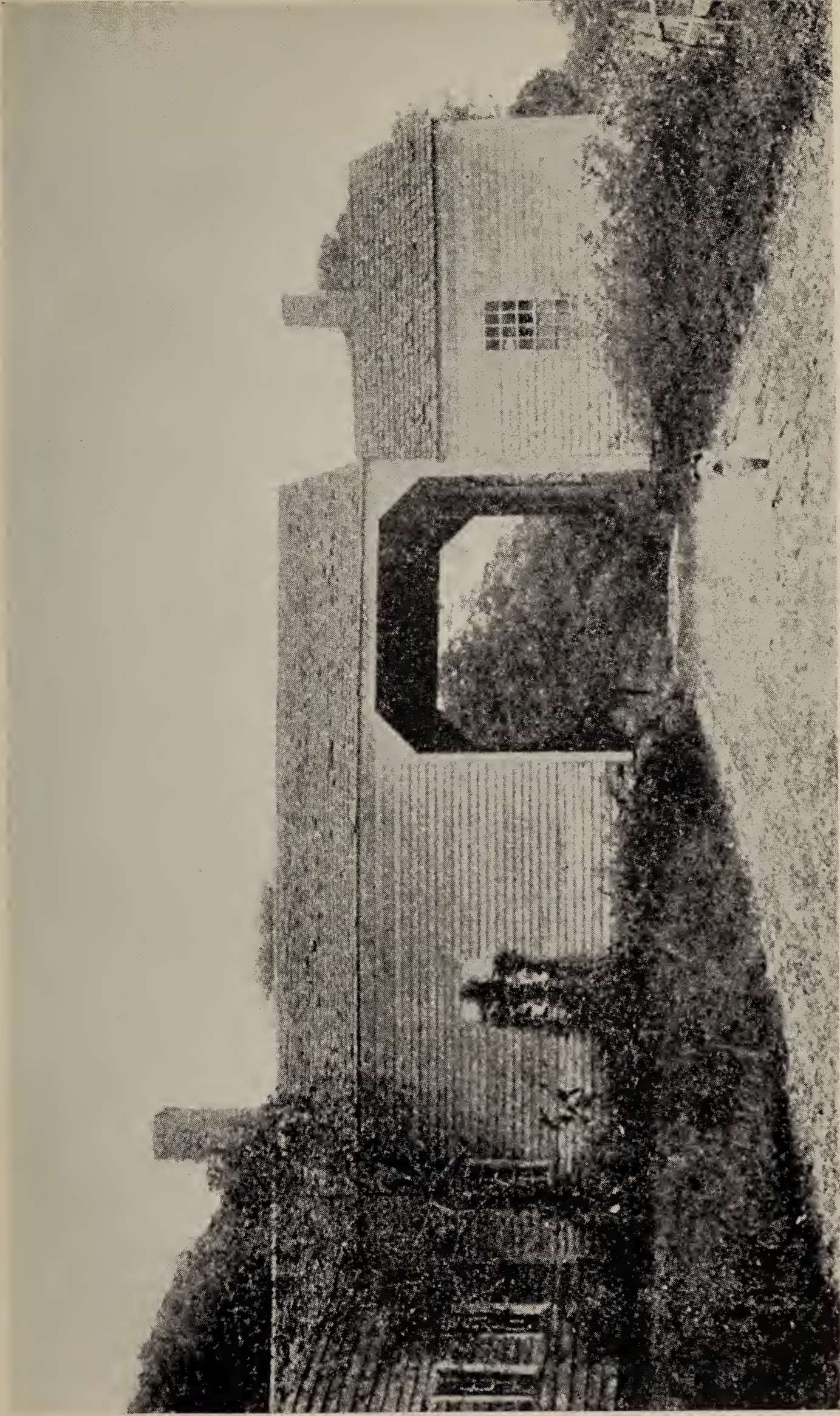
## A HISTORY OF AGRICULTURE

and metals for a thousand and more blacksmiths; wines and brandies for taverns. Eastbound or westbound all vehicles must pull out of the way for the four-in-hand coaches that went tearing over the turnpike at six or eight miles an hour.

There were several stagecoach companies who made use of the Great Western Turnpike under a combination such as we now have in railroading, banking, and large business institutions of every kind. They worked in close agreement to regulate prices and keep down competition. The old advertisements show that each company had its name and its specialty in the stage-coaching business. Thus there was the Eclipse, the Telegraph, the Pilot, and the Eagle lines of stagecoaches. When traffic was heavy and one coach could not carry all the passengers, additional stages were put into service; sometimes a half dozen of these "extras" would follow the regular coach. A wealthy man might reserve a coach for himself, or a party of friends could charter an extra, in which case the traveling schedule was set by those ordering the coach.

Other westward routes from the Hudson did not have Albany as the starting point. Travelers on the west side of the Hudson might start westward at Catskill, via Schoharie and Canajoharie, a country route where no railroad runs today. Another road leading westward from Catskill went by way of Delhi, Unadilla, Oxford, Green, Lisle, and Richford to Ithaca, a busy pike indeed, cutting through many rich valleys and bustling little towns. This road fell into disuse for many years after the railroads came but is now a main traveled automobile route. It had its origin in 1800, but through stages did not run until 1805. It would be tedious to go into details, attractive though the theme is, of still other famous highways from the Hudson to the west. One of them must be mentioned since it gave the city of Newburgh some importance in the period of its greatest use. This road left the Hudson at Newburgh, passed westward to Monticello, across into northern Pennsylvania, to the Susquehanna, then up to Binghamton and on to Owego, Ithaca, and Geneva. It was, perhaps, of more importance to northeastern Pennsylvania than to New York since it provided an outlet for drovers and freighters of grain and other farm products from that region. This was a





A TYPICAL TOLL GATE







## TURNPIKES

comparatively short route from the Hudson westward, and still further to save time in the twenties one of the stage companies using it put the steamboat *Enterprise* on Cayuga Lake and *Seneca Chief* on Seneca Lake, so that passengers could board steamers at Ithaca or Watkins, take passage to the heads of the two lakes, and on west at a considerable saving of time.

Toll gates were set up every few miles on all of the privately owned turnpikes and many of the State roads as well. There was a toll gate at every bridge of importance. Toll rates varied with the company, and the distance to be traveled. Perhaps the rates given for the Catskill and Susquehanna Turnpike from Catskill to Wattles Ferry, one of the model roads of its time, strike a pretty fair average of charges. There were 10 gates on the line, with rates as follows: For 20 sheep or hogs, 8 cents; for 20 horses or cattle, 20 cents; for a horse and rider, 5 cents; for a horse and buggy, 12½ cents; for a coach, 25 cents; for a stage or wagon, 12½ cents.

For some time before and after the war of 1812, the settlers in northern New York were rather better off than those in any other part of the State by reason of the ease with which they sent their produce to market. Transportation was by way of the St. Lawrence and its tributaries; farm and timber products were floated with small cost down to Montreal, which was then one of the best markets on the continent. Moreover, the tributaries of the St. Lawrence furnished splendid power for sawmills and gristmills, necessities that marked the beginning of all early settlements. The deep and wide St. Lawrence was a natural highway that somewhat obviated the necessity of a turnpike. From 1797 until after the opening of the Erie Canal, northern New York grew steadily in population by having this advantage of transportation and nearness to markets. But with the opening of the Erie Canal, cheap and better lands in western New York and on into Ohio soon drove farming operations in northern New York to the wall, except for home supplies in the ever-growing manufacturing industries along its rivers.

River transportation was not sufficient, however, in the subarctic regions of northern New York where the waterways were frozen for at least a third of the year. Roads became a necessity

## A HISTORY OF AGRICULTURE

if the country were to develop. As early as 1791, Baron Steuben and other land owners in northern Oneida county asked the State to build a pike from Little Falls on the Mohawk to the falls on Black River. No action was taken, but in 1797 the first highway in the region, known as the "Old French Road" was built from Cape Vincent to High Falls on the Black River. This was the beginning of an era of building in northern New York. But most of the roads were short stretches, going hither and yon, until in 1804 State aid was obtained and a lottery was authorized to raise \$22,000 to build a pike in St. Lawrence county. In 1812 the St. Lawrence Turnpike was built and became an important means of communication between that region and the Mohawk. But even before this, in 1807, when the Legislature passed the general Turnpike Act, private companies had been formed to build and operate trunk lines in northern New York.

The turnpike usually presented many varieties of road building. Where the land was level, firm, and dry, the pike was kept passable by the simple means of plowing and scraping the soil into the center of the right of way where it formed a sharp ridge. Sod was raked in and thrown on top of the dirt, and all stones in sight were thrown out of the road or in depressions to be covered by earth. This was country road building as begun by the highway makers of a century ago and continued down to a time that men still young can remember. Originally, the proprietors did the building; later, the State required farmers to work out their road taxes or pay money to have someone else do it under the supervision of a pathmaster. The splendid American highways of today are the result of less than a generation of experiment, inventiveness, resourcefulness, and determination of American road builders to have the best, made possible, mandatory perhaps, by the coming of motor vehicles.

Unfortunately for the old pike builders, the terrain over which their roads had to pass was not always solid land. Wherever a turnpike was of any considerable length, wearisome swamps had to be traversed, and the corduroy road afforded the only means of crossing a swamp. A log causeway was made by laying down layer after layer of logs and poles until a solid platform was elevated above the level of the marsh. The logs, according to the



## TURNPICES

vociferous accounts of a thousand travelers, were piled upon each other without any kind of squaring or adjustment, so that the jolting of the wheels from one log to another gave torture to the traveler in a stagecoach. Sometimes these swamps were converted by long continued rains into lakes which covered the wooden road. Since the stages traveled night and day, it was sometimes a fearsome ride over water-covered corduroy roads, that every turnpike of length was sure to possess, in spring, fall, and during the heavy downpours of summer. In such seasons, even dirt roads on high land wore marks of the flagellations inflicted by storms. Heavy rains scooped out the soil into holes into which first the wheels on one side of the vehicles dropped and then those on the other side plumped, so that outside passengers had difficulty to keep from being spilled out, as the drivers dauntlessly pushed their four or six-horse teams from stopping place to stopping place. After a day's ride over such roads, bones and bruises bore testimony to the poorness of early road building. Corduroying the swamps formed the principal part of road making by the early settlers. At these road-making gatherings opportunity was offered for discussion of the news, politics, religion, war, the state of the crops, comparative advantages of the new country over the old, and so forth. With the coming of sawmills many of the roads were planked—a great improvement.

New comers and visitors to northeastern America were as surprised and pleased with sleighs and sleighing as they were displeased with wagons and stagecoaches. They marveled at the great weight of the load which a team of horses could pull on well-broken winter roads. And so they might, for it was no uncommon sight to see two-horse sleighs loaded with logs, farm produce, or merchandise that would have required four or five teams to haul on wheels. Foreign visitors liked the easy motion of the stage-coaches on runners which sped rapidly over the ground with none of the bouncing and jolting of wheeled carriages. An English visitor in 1776 writes, "Young ladies and gentlemen are so fond of this (sleigh-riding) as a diversion, that whenever the snow gives over falling, tho' it be after sunset, they will not wait until next day but have their sleigh yoked directly, and drive about without the least fear of catching cold from the night air." As

the Englishman observed, young people were fond of sleigh-riding. A cutter, a fast horse, a string of jingle-bells, a fur robe, plenty of snow, an open country through which to whirl, furnished means for a most pleasant winter diversion.

Much of the heavy hauling over the old highways was done in winter. A sleigh could make twice the distance over snow that a wagon could on earth roads. Moreover, however well built a wagon or stage might be, there were countless mishaps to wheeled vehicles in rolling over stumps, rocks, and corduroy causeways, and plunging into the mires and sloughs of water-soaked roads. In bad going, the roadsides, according to the accounts of travelers, were often lined with broken-down vehicles, some abandoned and others under repair by owners and drivers who worked with bar, hammer, and sledge, so often accompanied by torrents of loud-mouthed profanity that drivers and wagoners were universally cited as a hardened and sinful lot, a reputation which addiction to strong drink did not lessen.

Stagecoaches, freight wagons, and the drovers' herds did not wholly monopolize the old turnpikes. There was a pageant of foot passengers as well—workmen, peddlers with their packs, the humble cobbler, travelers without money to ride, strange Indians, bands of gypsies, missionaries, strolling players, and all the odds and ends of New World humanity. The peddler's cart or gaudily decorated wagon was omnipresent. The farmer's supply of tin-ware, pottery, brooms, clocks, ribbons, jewelry, combs, and a thousand similar articles came almost wholly from the peddler, who at first carried his wares in a pack on his back, or in saddle bags, these to be superseded by a cart, and then the opulent peddler's wagon of a generation ago. The peddlers were shrewd, cunning, and often dishonest, but no farmer's wife could get along without them.

A large percentage of the farm vehicles were drawn by oxen, and no farmer until well along in the nineteenth century supported horse-drawn vehicles. Mostly farmers walked. A walk to town 10 or 15 miles distant and back the same day with eggs and butter one way and sugar and salt or their kind the other was no great feat for old or young, men or women. Produce went to market behind oxen, and unless affluent the farmer and his family



## TURNPIKES

rode behind oxen or in the saddle. A team of horses was tantamount to a Ford a decade or two ago; a buggy, tantamount to a Rolls-Royce today. With them rode the doctor with his saddle bags; the itinerant preacher riding his circuit; the judge accompanied by men of law on their way from court to court; and at certain seasons of the year gaudily uniformed militia riding to the county muster. Nobody of more importance traveled the old roads or had a warmer welcome everywhere than the man who carried the United States mail, and there are tales about him and his doings in the old accounts full of the light and color of an adventurous age.

Over certain of the turnpikes, especially those passing to the west through the State, about the commonest travelers were families seeking homes in central or western New York or farther on in the Ohio country or a little later in Michigan, Indiana, and Illinois. Their rude wagons in the earlier days were uncovered and the passing traveler or wayside observer might quickly make an inventory of the worldly possessions of family after family as they treked westward in search of new lands. Pots, pans, beds, seldom a chair or table, farm tools, only the absolute necessities were worth carrying to the new home. The young, the weak, and the sick rode; the able-bodied trudged, men in front, women and children in the rear. There was no back-seat driving. The wagon was most often drawn by oxen, but sometimes with such mismatched teams as a horse and an ox or an ox and a cow.

The few routes named were the pioneer lines in New York. Beginning in 1800, there was a period of 40 years of slow, steady development of stage routes. Waterways and canals gave them keen competition in the summer, but none in the winter, and it was not until the railroads came that the stagecoach was driven out of business. Travel on the main routes was highly organized. Inns dotted the roads almost from mile to mile. Secondary routes connected small communities off the main line so that a map of the state routes showed as many criss-crosses as a railroad map does today. The stagecoach companies of the main routes worked together and several of the larger companies gained and held a monopoly against which there was no possibility of a new company gaining a footing. Utica was a hub for stage routes scarcely

## A HISTORY OF AGRICULTURE

less important than Albany, with connections to every part of the State. Further west, Ithaca, Geneva, and Buffalo were stage centers. A route from Utica to Binghamton, Owego, Ithaca, Bath, and Olean gave connections with a network of Susquehanna Valley lines leading south to Harrisburg, Baltimore, and Washington; another branch ran west to Pittsburgh and Ohio. Over this road many New Englanders bound for the Ohio country passed until the building of the Erie Canal. It is estimated that from 1815 to 1830 the number of westbound passengers by stage averaged 40,000 a year.

Stage horses off the main turnpikes were ill-fed and often little more than animated bones. The stages were usually second-hand, dilapidated, and unsafe. Harnesses were mended with or partly made of ropes. On well-built turnpikes in summer a stage made 40 miles a day with two changes of horses; in winter, 25 miles. The travelers must ride from 12 to 18 hours to cover these distances. Horses must often flounder up to their bellies in spring and autumn freshets. On muddy hills, in these seasons, teamsters must "double-up" their spans in pulling through the mire. The best turnpikes probably were not nearly so well built as the average country road of today.

It was not until the railroads came that stagecoach travel began to wane. The canals did little harm in the way of competition. During the winter, staging went on whereas canalboats and steamboats were frozen in. Where there was competition between canal packets and stagecoaches, the coach was chosen by passengers who had the means to pay, and only emigrants took the packet for a through trip. It is true that the packetboats were a more comfortable means of travel, but they were slow and the scenery was monotonous. When the novelty of canal travel wore off, passengers went back to the stage and let the boats haul freight. Sometimes passengers took the stage for the day and changed to a packet at night, which gave them a chance for a good night's sleep, if weather was propitious as to heat and the boat not overcrowded. Of freight competition DeWitt Clinton wrote:

"Produce is carried by land from Utica to Albany for 8s per 100 lbs.; by water to Schenectady, for 6s. When the Canal Com-





A COVERED BRIDGE  
From an etching by Basil Hall, 1829





## TURNPIKES

pany reduced the toll, the wagoners reduced their price, in order to support the competition. Country people owe merchants, and pay their debts by conveyances of this kind, and in times when their teams are not much wanted for other purposes."

To supply the many stage routes in New York with coaches and accessories was in its day a big business. Wagon makers built most of the stages until well after the turn of the nineteenth century when one after another several large manufacturers engaged in building stagecoaches. One of the earliest and one of the largest of such manufactories was established by James Goold in Albany in 1813. Charles Veazie began the same business in Troy about 1815. Orsamus Eaton was another Troy builder who, in 1833 with Uri Gilbert as partner, formed a company which built many vehicles until the factory was destroyed by fire in 1852. It was this company that first put a rail around the top of coaches to carry baggage, noted at the time as a great improvement. Probably Eaton and Veazie made the most noted of the coaches during the time they were in business. Their famous Trojan stages went to all parts of the Union and were everywhere noted for beauty, strength, and carrying capacity. Long after canals and railroads were in full swing, the manufacturers in Albany and Troy continued to build coaches, and as late as 1850 Eaton and Gilbert boasted that they had made more than 5,000 in use in North America.

Most of the men employed by the proprietors of stagecoach lines were men from the farms, and since it required a small army of drivers, runners, and agents to keep the stages of the State on the roads, farm labor was depleted to supply the post roads. There were, as might be expected, stage associations of employees and proprietors. Employees organized to keep up the wages, to regulate hours, and for such mutual protection as labor unions now provide. Owners of stage routes organized to keep out new comers in the business, to keep down wages, to regulate drink which their employees seemed always to need, and for purposes of advertising.

The turnpikes of the State were the pride of the communities through which they passed. Every pike was better than any other

## A HISTORY OF AGRICULTURE

one which competed with it. The reputations of some of the old highways still live, and to this day dwellers along the main routes delight to recall the times, as told them by their parents or grandparents, "when the pike was in its prime." There are tales of tavern keepers who grew fabulously rich; of the droves of livestock; of the trains of immigrants; of the huge hostelries crowded with the finest horses; of the stagecoaches; and of the thousands of Canastota wagons which headed toward Albany or Catskill, creaking under the yield of the farms of central and western New York.



## CHAPTER IX

### COUNTRY LIFE A HUNDRED YEARS AGO

**B**ACKWARD glances at civilization are always depressing because from the heights that we have attained, in material things at least, there seems so much that our forbears did not have that we look upon as bare necessities to living. A retrospect of the modes of life of the generations of American farmers that preceded ours must be more or less melancholy even to those who now have only a modicum of life's comforts. Many of the familiar things of home, travel, education, medical care—the environment of our pleasant life—as short a time as a generation ago people lived without. Conceive life without a match, a lamp, a stove—examples of the most primitive needs of light and heat. Yet in 1800 there were none of these. Try to conceive of a nation of farmers living and dying without steam, electricity, or gasoline, yet such was the life of the farmer, as to steam until well into the nineteenth century and as to electricity and gasoline until the end of that century.

The farm home of a century ago was primitive indeed. There were few fences, and cows and pigs roamed at will along the roads and through the woods. So far as New York is concerned, houses in this period were intermixed in all stages of improvements from the rough cabin of the settler to the "elegant" villa of a wealthy landowner. Whatever the condition of the dwelling house, farm out-buildings were usually of cheap construction, small and mean, excepting perhaps in the case of the Dutch, for it was a common observation of travelers preceding and after the Revolution, that a Dutchman laid out his money on his barns, while a Yankee spent his money on a house. It is often noted, too, that the Yankee always built close to a road, while a Dutchman chose flats or valleys at some distance from the road. The Yankee rarely finished the inside of his house, being content with a specious imposing exterior, although it was not until the middle of the nine-

## A HISTORY OF AGRICULTURE

teenth century that any farmer thought of painting a house. As soon as the settler had cleared a few acres, he usually planted in the rear of the house an orchard of seedling apple and peach trees with perhaps a few cherries and pears, and these were most often the only ornamentals.

The art of ornamental planting both in cities and on farms in America is very largely a development of the present generation or at the most the one preceding it, and even yet it is sadly lacking in most farming communities. Early farmers knew nothing of ornamental gardening and few even saw the necessity and the pleasure of having trees about their house. This is not surprising. The native forest was always in sight, and the human eye takes pleasure in what is uncommon, so that the settler in the forest usually considered an open plain more beautiful than the forest. His first desire was to have a clear view of the sky—a bare, naked patch of ground. Trees in his mind were associated with hard labor, ague, mosquitoes, bears, and wolves. It was only after his land was well cleared that the settler desired the sheltering boughs of trees as a protection from a scorching dog-day sun.

Perhaps a modern dweller, either on the farm or in the city, should he be compelled to live in some environment similar to our colonial past, would find the old methods of heating and lighting an almost unendurable hardship. It would seem strange indeed when the fire went out to have to go to a neighbor to borrow a piece of burning pine fat or a shovel of coals. In cold weather an attempt was made to keep fires burning all night, so that someone in the house had to get up once or twice to replenish the wood fire. In summer, coals were covered with ashes at bed time so that they would be found alive when raked open in the morning. Nearly every house had its tinder box, but starting a flame with flint and steel was a tedious piece of business, and borrowing fire was usual when one had the mischance to lose his overnight. Fortunately, the very best maple, beech, and oak fuel was embarrassingly abundant and cost little but cutting and foresight in drying, so that a farmer might have, if he would, great heart-cheering fireplace fires with an ingle-nook at which he or his family might take their ease.



## COUNTRY LIFE A HUNDRED YEARS AGO

The first departure from the fireplace seems to have been the Franklin stove invented by Benjamin Franklin about 1742. Franklin did not patent his stove, if indeed there was the possibility of patenting inventions as early as 1742, and it was quickly copied and manufactured in all the colonies in an infinite variety of designs and ornamentations. The typical stove was a three-sided frame of iron plates with an open front and an iron base or hearth. It was really an iron fireplace which gave greater heat than the usual built-in fireplace. Features of the stove added from time to time were a hot air box in the back and a system of drafts by which circulating air was heated. The base was sometimes supported by low feet and on some models the top was surmounted by a brass urn to give further help in heating the surrounding air. Some early models had wings on either side of the projecting hearth. The antique shops have so popularized the Franklin stove, and there are so many reproductions of this famous invention of more than a century and a half ago that it is now again known to all of us.

The kitchen stove, prototype of the wood and coal ranges of modern kitchens, came into use about 1850. The first stoves were simple fire-boxes about 18 inches long and eight inches wide and deep. On top of this box were two lids for cooking. Later an oven was added, and from time to time other improvements which seem never to cease so that even the modern housewife must have a new improved kitchen range from time to time. In the primitive kitchen stove, there was scant space for three or four small sticks of wood, around which in zero weather most of the family gathered, since even so poor a makeshift as this first stove gave out more heat or at least distributed heat better than a fireplace. Under the stove were piled the boots and socks of the male portion of the family that they might be dry and warm for morning use. That which sometimes happened was that the fire went out or gave so little heat that soggy boots and socks were frozen solid. Huge box stoves for heating came a little later than kitchen stoves and long persisted as the best means of heating stores, churches, school-houses, and public buildings. The round stoves now in common use for such places, where stoves are still a necessity, were introductions of the sixties and seventies.

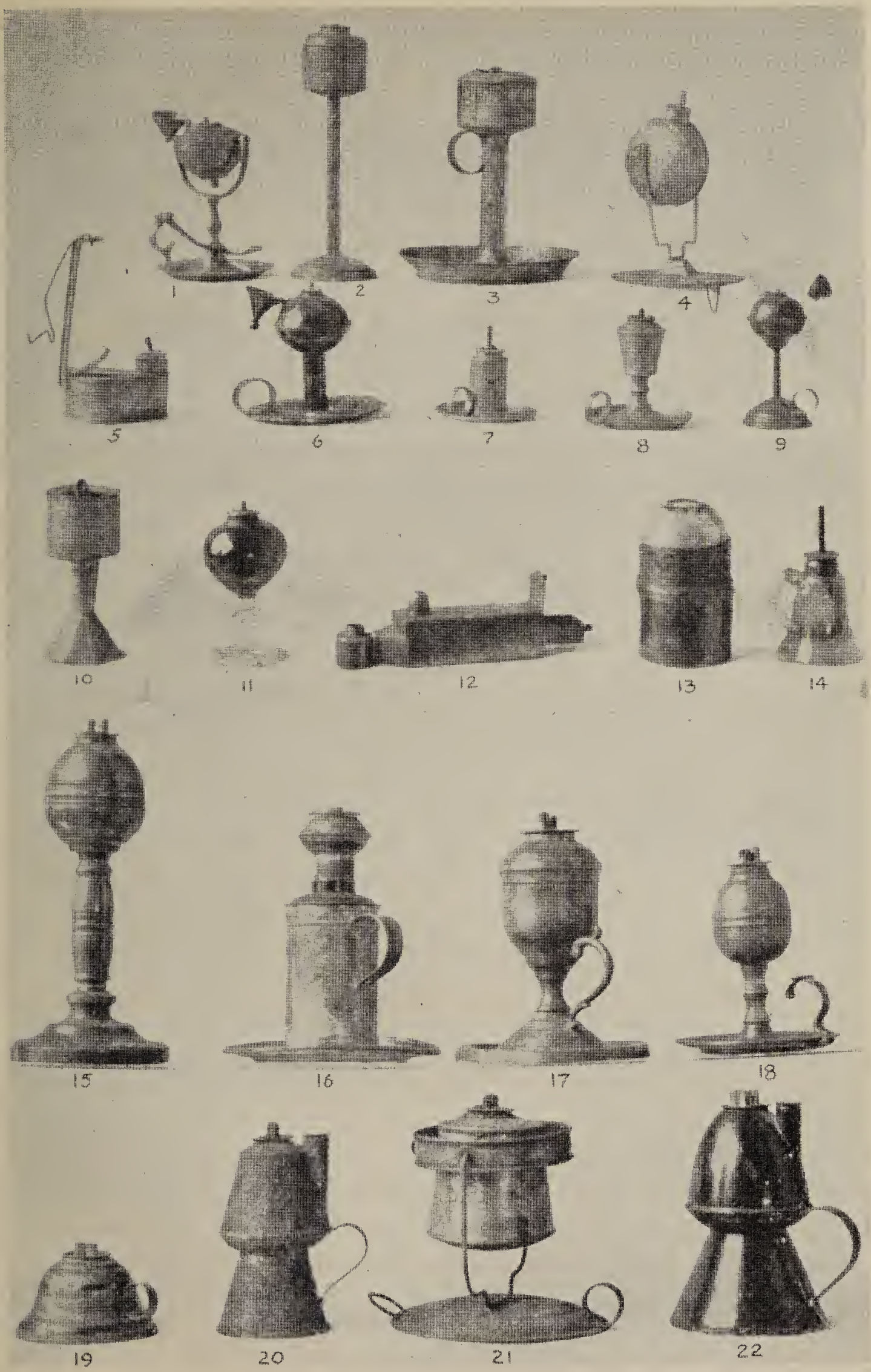
## A HISTORY OF AGRICULTURE

The coal stove was invented by Dr. Eliphalet Nott, a learned genius, a divine, a college president, an author, and a prime mover in temperance and slavery reform. Throughout his life he paid much attention to physical science, especially to the laws of heat, and had to his credit some thirty-odd patents for inventions, of which the most notable was the stove for burning anthracite coal invented in the 1830's. It is pleasant to record that Dr. Nott's invention, together with fortunate investments in land, enabled him to accumulate a fortune from which he endowed Union College with property that was valued at \$500,000.

The development of matches and lamps preceded changes in methods of heating. The first step in the evolution of the match was a sliver of wood tipped with sulphur which ignited when brought in contact with phosphorus kept in a vial. This invention seems to have come from the hand of some genius about 1810. Meanwhile, common means of carrying fire from one part of the house to another were hemp, flax, or cotton strands dipped in sulphur. These were cheaper and more easily made than paper tapers which were not to be had until newspapers and magazines gave an abundance of waste paper to be rolled into tapers or "spills." Such papers were in common use down to the seventies or eighties when friction matches became really cheap. All domestic devices were superseded by friction matches which were introduced about 1830. At first they were known as "locofocos" and "lucifers," names which continued down to the Civil War and perhaps afterwards.

The original American lamp was a possession of the Eskimo. It was a shallow vessel of stone, bone, clay, or wood, in which the oil of the seal, walrus, or whale was burned with dry moss serving as a wick. The first lamp used in the colonies was of iron, either forged or cast, called a "betty." The earliest of these were without lids. Then followed a betty with a top or lid. The wick support was secured to the inside of the bottom. There were handles or hooks by which this primitive lamp might be carried from place to place, suspended, or held by a point which might be thrust into a crevice in the fireplace. This primitive light was used in the colonies as late as 1790. The first manufacturer of





EARLY TYPES OF LAMPS  
 Bul. 141. U. S. National Museum





## COUNTRY LIFE A HUNDRED YEARS AGO

lamps in the colonies was a tinsmith who began in 1680 to make betty lamps.

Among the earliest American experimenters to improve lights was Benjamin Franklin, who having made a great success of his Franklin stove, turned his attention to the improvement of lamps. Here he must have been at home, for in his boyhood he had spent long hours cutting candle wicks in his father's chandler shop. Franklin's invention consisted in devising two round wick tubes, so arranged that the distance between the tubes would equal the diameter of one of them. His theory was that the proximity of two flames created an upward draft that increased the heat and prevented smoking. This with some modifications was the Franklin lamp of a hundred years ago. From Franklin's time down to our own day there have been thousands of kinds of lamps invented, and still they continue to come. Heavy animal oils were used in the earliest invented lamps, until about 1845 when a man named Potter made from wood alcohol and turpentine an oil long known as Potter's fluid. This was the beginning of a long series of similar oils, all of which were superseded by kerosene which came into use about 1850.

In no other phase of living have the dwellers in rural New York made greater progress, as of course is true of the world at large, than in the knowledge of diseases and their control. Generations of farmers came and went almost without the care of physicians or surgeons. To judge from the accounts of travelers the whole of North America down until modern times had the great disadvantage of unhealthiness. The most common complaints were those coming under what we would now call malaria, but which then passed under the names of "ague," "chills and fever," "Genesee fever," and many etceteras. It was not known that the mosquito carried these malarial diseases, and it was thought they were essentially a disease of the country, connected with luxuriance and decay of vegetation. These malarias seemed most troublesome as the heat and length of summer increased, and were most common on the bank of a river and in newly cleared woodlands. Patrick Shirreff, who made the grand tour of North America in 1835, when New York, at least, was

## A HISTORY OF AGRICULTURE

fairly well settled, writes as follows of the unhealthiness of the country:

“But however favourable American farming may appear when simply viewing the quantity of produce, the country has many disadvantages deserving of consideration, and one of the most important is its unhealthiness. The whole of North America is liable to ague and fevers of various kinds, and the chief difference of situation in these respects seems to be owing to cultivation. The more cultivation is extended, the healthier the climate becomes, but occasionally ague and fever prevails in all situations. I found fever and ague at Hyde Park, on the banks of the Hudson, at Niagara, Whitby, and Chatham, in Upper Canada. The inhabitants on the prairies of Michigan, Indiana, Illinois, and Missouri were suffering much from fever when I was amongst them. Almost every person you meet with in America tells you of the healthiness of his situation, and the unhealthiness of other parts of the country.”

No one could know that the mosquito was the carrier of malaria, but this insect, still troublesome enough in most parts of rural New York, but which now with our knowledge of medicine is little more than a seasonal pest for a few days and a regular resource for squibs in comic papers, was then a menace to the health of the whole State and in many sections effectually kept settlements from being founded. Deadly germs, slyly hiding in insect and human, went back and forth between the two through the mosquito's bill spreading malaria wholesale through the settlements.

Washington's reputation as a truth-teller, early established by the cherry tree incident, suffered somewhat upon the publication in 1799 of a book by Isaac Weld. If we want to attach as much importance to the tale that Weld tells as to the tale Weems told of Washington and the cherry tree, the two have about equal foundation. Weld says:

“General Washington told me that he never was so much annoyed by mosquitoes in any part of America as in Skenesborough (a town in New York on Lake Champlain) for that they used to bite through the thickest boot.”



## COUNTRY LIFE A HUNDRED YEARS AGO

Soon after the appearance of Weld's book, President Timothy Dwight of Yale University, a devotee of Washington and America, gave the following explanation of Weld's statement:

"A gentleman of great respectability who was present when General Washington made the observation referred to, told me, that he said, when describing these mosquitoes to Mr. Weld, that they 'bit through his stockings, above his boots.' Our mosquitoes have certainly a sharp tooth, and are very adroit at their business; but they have not been sufficiently disciplined, hitherto, to bite through the thickest boot."

Tuberculosis, then, as now, was a common illness and probably filled many times as many graves as did "chills and fever." In nearly all accounts of early settlements there are records of sad instances of deaths from the Great White Plague which went under the names of "a decline," and later, "consumption." In particular, newly arrived immigrants seemed subject to tuberculosis which ended many bright hopes and dreams of a happy home in rich and free America. Typhoid fever took terrible toll and one of the numerous fevers under the name of "bilious fever" was frequently mentioned. Quinine came in as the standard remedy for malarial diseases in 1823, but tuberculosis and typhoid ran their course without let or hindrance until within the memory of most of us. It is pitiful to read of the remedies suggested for these several diseases. Thus, boneset was for a century or more considered a sovereign remedy for agues and fevers, even yellow fever. A hundred other herbs and simples are recommended in the recipe books of past generations, and almanacs and newspapers carried a greater list of patent remedies than are now advertised. He who has traveled much over country roads in New York cannot but have noticed that every mile or two a bit of ground had been reserved for graves. The inscriptions on the stones in these old burial places show that death garnered youth and middle age rather more freely when these old cemeteries received their tenants than in their modern counterparts.

In the early years of a settlement, there were no doctors, but as hamlets and communities grew the doctor became, after the minister, the most important personage in a community. Most of

the doctors who practiced in the country had learned their profession as a physician's apprentice, his first duties being those of a menial servant, cleaning bottles, tending the bell, sweeping the office, or at best he drove the doctor's horses in the daily round of visits. From these tasks he eventually graduated to the work of grinding powders, mixing pills, helping to bleed patients, putting on plasters, and dressing wounds. If particularly ambitious, and if a body could be filched from the graveyard, he might have some experience in dissecting and so learn something about anatomy. In stolen moments from other duties, the embryo doctor might read a few medical books from his master's scant and fragmentary library. After four or five years of such apprenticeship, he sought some doctorless community and hung out his shingle. Then began a country doctor's life of hardship. Day and night, summer and winter, he was at the beck and call of every sufferer for miles about. He dispensed calomel, bled for all and sundry complaints, attended childbirths, vaccinated, sat at death beds, and helped to bury his patients.

Happily the country doctor's drugs were few. These he personally provided from tinctures or infusions made by himself; the drugs he gave came from his own store, and his saddlebag was the only drugstore in the community he served. Anesthetics were unknown until 1846 when Dr. William Thomas demonstrated the use of ether at the Massachusetts General Hospital, and patients with broken bones and in severe operations often died of shock. Gangrene was to be expected after most operations. Disinfectants and bacteria were unheard of until the third quarter of the nineteenth century. There was much prejudice against vaccination and annually smallpox ravaged the land and eventually pock-marked the faces of most of its inhabitants.

Every farmer's wife was a practicing nurse and gave medicine. She purged the family with senna or rhubarb-root; the children had their blood purified in the spring with sulphur and molasses; to cleanse the liver, she fed calomel until her patient's teeth fell out; for this or that ill, she made drinks of horehound, smartweed, wormwood, cohosh, chinchona bark, slippery elm, boneset, and other herbs and simples. She could cup and leech, and at a pinch might bleed one of her own family; she was often called to act as



## COUNTRY LIFE A HUNDRED YEARS AGO

a midwife when a doctor was out of call; and even with the doctors at hand more children were brought into the world by midwives than by doctors—the childbirth fatalities were tremendous. The first Sunday after birth the new-born child was taken to an unheated meeting house where it was baptized, the minister in winter having to crack the ice. Less than half the children brought into the world survived. No one paid any attention to care of the teeth and few came to mature life with a serviceable set, nor could they be easily replaced since false teeth were costly and so poor in workmanship as to be hardly worthwhile. Gunpowder was a common dentifrice. There were no screens to keep out insects. Mosquitoes were smudged and flies were switched away from the dinner table with a green bough or a duster made from tail or wing feathers from a turkey or peacock.

Quite as great an advance has been made in the past 150 years in schools as in medicine. Until well after the turn of the nineteenth century in all of the regions west of the Hudson children still walked to school through woods infested with wolves and bears. Schoolhouses were, almost universally, log structures hastily run up, cold, illy lighted, poorly heated with fireplaces, and furnished with rough benches for seats; of desks there were none. The little red schoolhouse came a generation or two after the first settlements. Schools were taught for two months in the summer by a woman who had seldom attained her twenties and whose education had been received in some similar district school. In summer none of the children in the rural school wore shoes, and in winter many had to stay away from school for lack of them. For that matter, in every kind of work where shoes were not needed as a protection, men and women went shoeless in farming communities and carried shoes if they had them to and from town and social gatherings. Summer pupils were girls and young boys. The winter terms of two or three months were taught by a man. The ideal schoolmaster was a divinity student who would for a small salary teach to defray his expenses at academy or college. Neither school ma'am nor school master was out of pocket for "keep" since they were expected to board with the parents of their pupils, regulating the length of the stay in a

## A HISTORY OF AGRICULTURE

farm house by the number of children the farmer had in school. Enforced as the visit was, the school teacher was in most homes a welcome guest; at table the teacher was served the best the farmer had; slept in the best bed; and had a seat reserved in the ingle-nook of the fireplace.

Four, or at most five or six, months in the district school gave the farmer's children but the rudiments of an education. Country scholars learned reading, writing, and arithmetic fairly well. Spelling and writing in the schools were taught especially well, and graduates of the old district schools were more proficient in these studies than the products of our present graded schools. Grammar, algebra, and geography were extras for bright pupils. Webster's spelling book first appeared in 1784 and served the children of four or five generations. Morning and afternoon the school opened with reading from the Bible and with prayer. Daily the master flogged stupid and mischevious youngsters and must on occasion engage in hand-to-hand fights with ruffians of older years whose ambition it was to put the teacher out. Pupils and teacher ate a cold dinner at the noon recess. Of maps, charts, globes, dictionaries, models, and schoolroom ornaments there were none. The path of knowledge was rough and the teacher had no appliances, except the rod, to smooth it. To make learning easy was not the duty of the master.

The schools were ungraded; there were many classes; the methods of teaching were primitive; and yet it is certain that pupils who had a mind to study got a very good common school education, provided the teacher was a good one, and the teachers were usually better than the system under which they taught. The pedagogs of the day had a busy time of it; besides teaching children of all ages and all the subjects enumerated they must do their own janitor work, hold spelling and writing schools, and make quill pens for the whole school. Pen-making and pen-mending was an indispensable accomplishment of the teacher. He was likewise required to write the pupils' copy. Much of the teaching was from the Bible and the prizes were most often a Testament or Bible. A certificate dated New York, April 1, 1821, reads: "This is to certify that Henry Skellern of School No. 11 is entitled to One Cent for Punctual Attendance, and Two Cents



## COUNTRY LIFE A HUNDRED YEARS AGO

for Good Behavior, the past month, payable in Bibles and Testaments."

Young women from the farm seldom received more education than that offered by a few terms in the district schools. Occasionally, the daughter of a well-to-do farmer had lessons from the minister or his wife, but her chief education was in the homely duties of a housewife—to learn to cook, sew, spin, weave, and perhaps to embroider. She may have read recipe books, a little poetry, and religious works, but no novels. She would not have known who Shakespeare was nor have ever seen a theater in her life. She was not permitted to play cards and could not have told the ace of spades from the ace of hearts. She probably could sing many of the plaintive folksongs of the times, possibly sang in the choir, certainly went to singing school, and perhaps played the melodeon if her parents could afford such a luxury. In school, the Bible was her chief textbook. Until spelling was unified under the influence of Noah Webster's spelling book, orthography was largely a go-as-you-please branch of learning. With the wretched spelling of George Washington as an example, no young lady need have minded much if she misspelled half the hard words in the letters she wrote.

It must not be supposed that because the age and the necessity of continuous labor deprived the farmer of school education that his knowledge was contemptible. Of book learning he may have had little, but the many all-recording British travelers who sailed up the Hudson, took boat up the Mohawk, and rode on horseback through the Genesee country to see America's most spectacular wonder at Niagara, give evidence that the New York farmer was the most inquisitive mortal on earth. Eager, shrewd, talkative, he sought news from every passer-by and remembered what he was told. Religion, politics, prices, the state of the country, the life in cities, new lands to settle, gossip, and scandal were all grist to his mill. He learned from the school master whom he took in turn in boarding, the hour-long sermons of the minister, the political stump speakers, the peddler, the post rider, and in discussions with neighbors at the tavern and country store. All in all, in a brush of wits, especially in politics or religion, a farmer

of old would give the modern farmer stiff opposition with the chances good that the latter would be talked down.

The general store found in every hamlet undertook the task

1st January, 1822.

## More New Goods.

**T**HE subscriber is now receiving a large addition to his Stock of MERCHANDISE, which makes his assortment very complete, which will be sold

## *Cheap for Cash,*

OR EXCHANGED FOR

Pot and Pearl Ashes, Whiskey, Wheat, Pork, Lard, Butter, Rye, Corn, Oats, Flax, Timothy Seed, Clover Seed, Bees Wax, Tallow, &c.

CASH PAID

*For most of the above named Articles.*

buttons, and shears; and the shoemaker his thread, wax, awls, and sometimes leather. In the store the sale of spirituous liquors was conducted by the measure in amazing quantities. Of cash to pay the storekeeper there was precious little, and most of the business was done by way of trade. The farmer exchanged for the storekeeper's wares grains and seeds in assortment; butter and eggs; meats, pelts, hides, tallow, and lard; often the housewife turned in the product of the spindle and loom for the goods she needed.

The newspapers of the time carried advertisements of goods whose names are wholly unintelligible to this generation. To go back to the turn of the nineteenth century, a country newspaper would present to its readers an advertisement such as this:

of supplying to its people food, drink, raiment, tools, and all the miscellany of living that could not be produced on a farm. The storekeeper furnished to the housewife tea, coffee, sugar, spices, salt, and such luxuries as the times afforded. The store carried gingham, muslins, silks, calicoes, combs, beads of women's wearing apparel, and for the men, broadcloth, denims, homespun, vest patterns, and coat patterns, for rich and poor alike. The carpenter purchased nails and edged tools; the tailor his thread,



COUNTRY LIFE A HUNDRED YEARS AGO

JOHN R. GREEN,

Informs his friends and the public,  
that he is now opening at his  
STORE, opposite Mr. S. OAK'S  
Tavern in the town of PHELPS,

A Fashionable Assortment Of  
DRY GOODS,

Consisting of

Cloth, Coatings, Kerseymers, Swan-  
downs, Corderoys, Thicksetts, Flannels,  
Baizes, Woolen Checks, Humhums,  
Coloured Cambrick Muslins, Book &  
Jaconet do. Calicoes, Shawls, Peelings,  
Lute-strings—An assortment of the  
most fashionable LEGHORN BON-  
NETS, Men's and Boys HATS, Blank-  
ets, and numerous other articles.

GROCERIES,

Brandy, Spirits, Hyson, Souchong and  
Bohea TEAS, Loaf, Lump and Musco-  
vado SUGARS, Pepper, Allspice,  
Tobacco Pipes, Window Glass, Soal  
and Upper LEATHER.

Iron, Steel, Hardware, Stationery,  
Crockery and Looking-Glasses.

The above goods will be sold *very low*  
for Cash or *produce*.

Nov. 18, 1803.

30ts

And who that loves strange names and consonances can refuse admiration of the stuffs on sale in Albany shops about 1784, described as follows: Tammies, half-thicks, persians and pelongs, blue sagatha and red bunts, ticklenburghs and black everlastings, and handkerchiefs known under the names of bandanoe, lungée, romals, culgee, puttikal and silk setetersoy.

## A HISTORY OF AGRICULTURE

As years passed, great improvements were made in country stores. From newspaper accounts, say from 1820 to 1850, one has no difficulty in drawing a picture of a general store in a



### TO HATTERS.

**T**HE subscribers have just received a general assortment of Hatters'

### STOCK & TRIMMINGS,

which they offer as low as can be bo't west of New-York, viz.

- 5000 Spanish and Saxony Hat Bodies
- 50 lbs Coney
- 50 do best blown Nutria
- 30 do Muskrat
- 10 do Back Otter
- 40 do raw Hares' Wool
- 500 Bouquet Tips
- 2000 wal'd cotton Tips
- 4 pieces white crimp'd Pelong
- 4 do do plain do
- 4 do Cotton Lining
- 200 silver Hat Leathers
- 200 gold do do
- 500 drab and black gilt do
- 200 pieces black and drab Bandings
- 200 do do do Bindings
- 50 gross black and white Buckles
- 50 pieces silk and cotton Braids
- 10 dozen Scivers

GEORGE NICHOLS & Co.

Geneva, January 5, 1831

prosperous town. Through the dazzling glass of a florid front, one saw long counters and tiers of shelves loaded with groceries, wearing apparel, hardware, drugs, and household furnishings. Glass cases of crystal clearness displayed cutlery, jewelry, small instruments of music, accordeons and fiddles. A raised dais railed in and lighted from sides and top stood in the center of the floor, the chief seat of commerce. Here the proprietor sat and surveyed his dominion, bought and sold, and pored over huge leather-bound

folios which seemed to humble debtors doomsday books. Often there was an attendant bookkeeper and money-taker, a man of special training from some distant city whose shrewd eye looked the customer through and through. Aside from the keeper of books and money-drawers, the proprietor, and visiting merchant princes, none dared cross the threshold of the storekeeper's chancel. A long shed in the rear of the store gave shelter to farm tools, shining and sticky in vivid rainbow colors, as they journeyed through the store from manufacturers to farmer. Hoes, axes, cross-cut saws, scythes, and cradles, were side-arms in this arsenal for farmers' weapons, which from morning to night rang with the clang of the assembler's work.

In winter, a long box stove glowed red behind the proprietor's private office. In the transaction of the unofficial business of the community in this part of the store, such quantities of tobacco



## COUNTRY LIFE A HUNDRED YEARS AGO

venom were ejected that the stove was flanked and guarded rear and van by boxes of sawdust. Behind the lounging platoon of tobacco fusiladers was a rocking chair or two where mothers might soothe fretful babies and give their versions of village affairs. In the cool, moist cellar of a great establishment such as this stood barrels of vinegar, molasses, pork, tar, turpentine, chests of tea, bags of coffee, boxes of cheese, kegs of salt mackerel, cases of codfish, packages of prunes and raisins, while from the rafters hung slabs of bacon, smoked ham and shoulders. The medley of odors in the Cimmerian darkness of the cellar suggested far away lands, and the scurry of rats added further suggestion of adventure. On the porch, or possibly the sidewalk, stood a cigarstore Indian, sometimes a wooden horse if the store sold harnesses, together with other emblems of trade and such articles for sale as could be displayed without danger of weather or thieves. The upper floor of the store was a public hall in which were heard a motley array of lecturers, entertainers, and political speakers; or it was used as a dance hall, for oyster suppers, socials, and in times of stress for religious gatherings.

In lieu of subscription lists, community chests, and campaigns for raising money in the last years of the colonial period and for some 60 or 70 years after in all of the colonies and states, money for semi-public purposes was raised by lotteries, not only in cities and towns, but by states, and in the period just after the Revolution by the authorization of state and federal governments. Thus money was raised for court houses, town halls, bridges, turnpikes, either to build new or for repairs. Salaries were sometimes raised by the sale of lottery tickets. Churches and colleges resorted to lotteries when money was needed. The lottery mania raged from 1790 down to the Civil War, and then was generally abandoned except in the case of the Louisiana Lottery, which continued until 1890, when the Federal authorities forbade it the use of the United States mails. Advertisements for lotteries furnished prime support to newspapers. Here are two taken from several in the *Geneva Gazette* May 28, 1815.

## A HISTORY OF AGRICULTURE

### Five Prizes of 20,000 Dolls.!

### GRAND NATIONAL LOTTERY

Authorized by the United States and the State of Maryland, for opening a Canal in the City of Washington, will commence drawing the 28 August next.

#### SCHEME.

5	Prizes of \$20,000	is \$	100,000
2	/ / /	10,000	/ 20,000
10	/ / /	5,000	/ 50,000
25	/ / /	1,000	/ 25,000
30	/ / /	500	/ 15,000
100	/ / /	100	/ 10,000
200	/ / /	50	/ 10,000
600	/ / /	20	/ 12,000
15,800	/ / /	10	/ 158,000


*Not two Blanks to a Prize.*

The great national object contemplated to be effected by the above lottery, is one in which every citizen attached to his country must feel interested. If other inducements should be wanting, the splendid scheme, from the number and richness of the prizes, offers advantages to the adventurers never exceeded. All prizes will be paid 60 days after the completion of the drawing—the managers having, in compliance with the law authorizing the lottery, deposited their bond with the Secretary of the Treasury of the United States, to secure fortunate adventurers the payment of all prizes.

#### TICKETS,

HALVES, QUARTERS and EIGHTHS,

For sale at J. Bogert's Bookstore.

 Prize Tickets in the Board of Health Lottery (the drawing of which is completed) will be received in payment for Tickets in the National Lottery. Present price, \$9; but will soon advance.

Geneva, May, 1815.



## COUNTRY LIFE A HUNDRED YEARS AGO

Lotteries were almost as demoralizing as the tavern bar with its tippling. The time spent in purchasing tickets and in attending drawings, the fevered anxiety of the purchaser, the exaltation if the ticket was a lucky one, and the disappointment that followed if unlucky, kept the purchaser from his labor, consumed his earnings, destroyed his morale, and brought those who followed the lotteries for any length of time to pauperism. Old and young, rich and poor alike, gambled, yet any man in a rural community who quoted Shakespeare was under the suspicion of immorality.

From the middle of the eighteenth century to the middle of the nineteenth almost everything that could be done by assembling neighbors in the barn or house or on the farm in what was called a "bee" or a "frolic" was so done. There were bees for rolling up a log-house or a "raising" for a house, barn or church; bees for preparing apples for drying, quilting bees, husking bees, spinning bees. The spelling school was a sort of a bee as was also the writing school. The people had to have diversions, and had a penchant for merry-making at every possible opportunity. Probably there was more fun and frolic in these assemblages than there was gain, since food and drink had to be prepared in Gargantuan proportions to satisfy the vigorous appetites of those who attended. In the earlier years of such gatherings, drinking was immoderate, and there must have been much time lost in the day that followed the merry-making at a house raising or a husking. Much more profitable, since it divorced work from play, was the very general farmer's custom of "changing work," which depended upon the same principle as that of bartering products of the farm for products of the store. Some kind of cooperation there had to be, as both money and hired labor were scarce. Descriptions of bees of one kind or another are to be found in every traveler's tales of what he saw in America, in all the newspapers of the old times, and from the memories of many men and women still living, but from no source can a better one be found than in Joel Barlow's *Hasty Pudding* which was published in 1793, as follows:

## A HISTORY OF AGRICULTURE

“The days grow short; but though the falling sun  
To the glad swain proclaims his day’s work done,  
Night’s pleasing shades his various tasks prolong,  
And yield new subjects to my various song.  
For now, the corn-house fill’d, the harvest home,  
The invited neighbors to the husking come;  
A frolic scene, where work, and mirth, and play,  
Unite their charms, to chase the hours away.

Where the huge heap lies centred in the hall,  
The lamp suspended from the cheerful wall,  
Brown corn-fed nymphs, and strong hard-handed beaux,  
Alternate ranged, extend in circling rows,  
Assume their seats, the solid mass attack;  
The dry husks rustle, and the corn-cobs crack;  
The song, the laugh, alternate notes resound,  
And the sweet cider trips in silence round.

The laws of husking every wight can tell—  
And sure no laws he ever keeps so well:  
For each red ear a general kiss he gains,  
With each smut ear he smuts the luckless swains;  
But when to some sweet maid a prize is cast,  
Red as her lips, and taper as her waist,  
She walks the round, and culls one favored beau,  
Who leaps, the luscious tribute to bestow.

Various the sport, as are the wits and brains  
Of well-pleased lasses and contending swains;  
Till the vast mound of corn is swept away,  
And he that gets the last ear wins the day.”

To spin well was an accomplishment to which every girl aspired. Competitive bees in which not only quantity but quality of work counted were a feature in every neighborhood. In some communities, more particularly at county fairs, prizes were offered to encourage women, especially those from poor families, to spin. It was the pride of a woman’s heart to measure her endurance in spinning against that of any other woman in the neighborhood. The contest consisted in seeing how many knots could be spun from sun-up to sun-down. Here is a quaint chal-



## COUNTRY LIFE A HUNDRED YEARS AGO

lenge in a letter published in the *Phelps Messenger* under date of August 22, 1812:

"Mr. Stevens: Please insert in your paper that Miss Mary Briggs, who lives with me, spun from a little after sun-rise until a little before sun-set, one hundred ten knots of good woolen yarn (70 knots to the pound). Let other ladies in Ontario County equal this if they can. (Signed) Benedict Robison."

Life must be made happy to be endurable in pioneer communities and it is not to be wondered that the farming people had foregatherings in bees, frolics, and militia days. Not only was there the pleasure of the event itself, but there were opportunities to exchange greetings and banter between people who lived on lonely farms and saw few of their kind. Such days gave opportunity to barter, to stimulate business, to talk religion and politics, to air scandal, and to carry on all of the grand business of life much as it goes on now in lands and under circumstances less stern. Besides, New York and its people was largely an offspring of Puritan New England, where Christmas was never celebrated, where there were no church and saints days, as in Catholic countries, and where Sunday was a day of rigid self-abnegation and penance.

The farmers of today would consider the recreations and amusements of their predecessors of 100 years ago unendurably barren, so meager were the means of entertainment and so few the pleasures. The Saturday half-holiday was not in vogue in either city or country. There were far fewer legal holidays then than now, and these, with the single exception of the Fourth of July, were not generally observed by farmers. The day's work was from sunrise to sunset, with chores to do before daybreak and by lantern at night. There were no near-by pleasure resorts, bathing beaches, State parks, and no organized amusements. The Grange was not organized until 1867 and there were no Farmers' Institutes, nor summer meetings for visits to other farming communities, although there were very good State and county fairs, races, and agricultural societies. There were no vacations in Florida or California, and in every community there were many adults who had never been to a city or more than a few miles from home. Croquet became popular in the middle of the century, but

it was not until well toward the close of the nineteenth century that baseball clubs were organized. Golf was not known in America. In neither city nor country were there nature clubs with an interest in plants and birds, and the few individuals who paid attention to natural objects were regarded as eccentrics. Most of the amusements of the time centered around the taverns, the campaign speeches and barbecues of political campaigns, Sunday school picnics in the summer and singing school, writing schools, and church sociables in winter.

All able-bodied men between certain ages had to turn out to drill on militia day unless excused and few cared to make excuse. There were drillings, maneuverings, and inspections, all carried on to the music of a brass band or a fife and drum corps. Shooting matches, wrestling bouts, booths for food and drink, side shows, and wonders in natural history, furnished amusement. The whole countryside saved pennies and nickels, and came for miles around to enjoy the fun. The military features of this great day are thus described by an English traveler:

“ . . . we saw more military manoeuvrings; and certainly more awkward gentry I never beheld; but what can you expect when only three days in each year are set apart for instruction? The chaps, notwithstanding the blustering of their military Mentor, were all whiffing cigars and amusing themselves. I admit that some of the uniform companies are in a much better state of discipline. Their dragoons reminded me of the times of Oliver Cromwell; for these cavaliers have red jackets, or jerkins, cut in the oddest fashion, with yellow doublets, and yellow breeches, and immensely long red feathers, stuck on most uncooth-looking caps. We had ‘Patrick’s Day’ and ‘Yankee-Doodle’ from every band we fell in with and where there was no band, an outrageous thumping of drums supplied the deficiency.”

Sunday was the Sabbath, sharply divided from the days of the week. The whole country was under the shadow of Calvinism, which prescribed for the Sabbath a day of irksome restraint and gloom. Games, sports, even singing and reading of light literature were prohibited in the hours that were to be kept “holy.” No work was done except the necessary chores. Most farmers



rigidly observed church-going, and with their families listened to the preachings and teachings of this or that sect in the straight-backed pew of the meeting house or the school-room. In the earlier part of the century, the church service was a long one and the early morning found a procession of springless wagons, adults in the two broad seats, children wedged in, making for the nearest church. In the winter it was necessary to take a foot-stove to help warm the church, and since religious exercises in most sects were an all-day affair, farmers living at a distance took a luncheon to eat between the forenoon and afternoon sessions. Four hours of doctrine and edification were packed into preaching, Sunday school, and Bible class. There was a deep-set prejudice against instrumental music in New York churches that lingered until long after the Civil War. The violin and the cello were introduced in some churches before melodeons or organs, but these instruments were associated with dance music and there are tales of deacons blowing tin horns in meeting to drown out violin or cello. Sunday, it is to be feared, cast a baleful gloom over religious teaching and it was only by laying much stress on the doctrine of total depravity and eternal torment that the preacher could hold his congregation together.

Ministers were the intellectual giants in any community. Presbyterian, Congregational, and Episcopal clergymen were almost always college men; Baptists and Methodists not so often. Some of these college-bred ministers read and spoke Latin, Greek, and Hebrew, and on occasion would give out the text in two or three languages that he might "whet the desire for more liberal education." Not infrequently, the minister was a unique personage in a community, as one may judge from accounts of clergymen who not only ministered to their flocks, but designed and helped to build the church, the parsonage, or managed a model farm, perhaps printed a paper with wooden type of his own design, or wrote books, or painted portraits, or constructed clocks, or invented this or that or another tool, or perhaps did a little surveying. Without the minister and his church in a rural community, country folk would much more quickly have settled down to stodgy dullness and found their lives much less worth living.

Great numbers of settlers came to Steuben county, up the Susquehanna and Chemung rivers from Pennsylvania. McMasters, in his *History of Steuben County*, gave these Pennsylvanians a bad name. What he has to say of them, in part no doubt facetious, serves somewhat to characterize pioneer life in western New York. McMasters writes:

"A large proportion of the first settlers upon the Canisteo were from Pennsylvania, and had within them a goodly infusion of that boisterous spirit and love of rough play for which the free and manly sons of the backwoods are everywhere famous. On the Susquehanna frontier, before the Revolution, had arisen an athletic, scuffling, wrestling race, lovers of hard blows, sharp shooters, and runners, who delighted in nothing more than in those ancient sports by which the backs and limbs of all stout hearted youths have been tested since the days of Hercules. The eating of bears, the drinking of grog, the devouring of hominy, venison, and all the invigorating diet of the frontiers, the hewing down of forests, the paddling of canoes, the fighting of savages, all combined to form a generation of yeomen and foresters, daring, rude, and free. Canisteo was a sprout from this stout stock, and on the generous river flats flourished with amazing vigor. Everything that could eat, drink and wrestle was welcome,—Turk or Tuscarora, Anak or Anthropophagous, Blue Beard or Blunderbore. A 'back-hold' with a Ghoul would not have been declined, nor a drinking match with a Berserker. Since the Centaurs never has there been better specimen of a 'half horse' tribe. To many of the settlers in other parts of the country, who emigrated from the decorous civilization of the East and South, these boisterous foreigners were objects of astonishment. When 'Canesteers' went abroad, the public soon found it out. On the Conhocton they were known to some as the Six Nations, and, to the amusement and wonder of young Europeans, would sometimes visit at Bath, being of a social disposition, and sit all day, 'singing, telling stories, and drinking grog, and never get drunk, nayther.' To the staid and devout they were Arabs,—cannibals. Intercourse between the scattered settlements of the colony was, of course, limited mainly to visits of necessity; but rumor took the fair name of Canisteo in hand, and gave the settlement a notoriety through all the land which few 'rising villages,' even of



## COUNTRY LIFE A HUNDRED YEARS AGO

the present day, enjoy. It was pretty well understood over all the country that beyond the mountains of Steuben, in the midst of the most rugged district of the wilderness, lay a corn growing valley, which had been taken possession of by some vociferous tribe, whether of Mamelukes or Tartars no one could precisely say, whose whooping and obstreperous laughter was heard far and wide,—surprising the solitudes.”

The date and the origin of the circus have a place in the history of agriculture. To thousands on the farm, regardless of age or sex, the circus is the chief means of expanding imaginative life. The menagerie is a school of biology in which farm-bred people get about all the knowledge they possess of animal life other than of domesticated animals. Acrobats in the ring show the possibility of skill and beauty in the human body. The clown brings songs and jokes for the year that follows and gives new conceptions of human nature. In lives filled with much that is drab and hopeless, the circus is a day of splendor anticipated for months and remembered for years. It is Africa, India, the Arctic, the Amazon, Australia, all of the ends of the earth; it is history, magic, chivalry, music, and romance to the people of farm and village.

In the old days when summer came and pikes and post roads were fit to be used, showmen, acrobats, and magicians took to the road and wandered from town to town. They stopped at the tavern and used the bar-room, the stable, or an outbuilding for a show place; or they hired a room or a hall. The sum charged for admission was small, so that even the barefoot boy might save his coppers and attend. Menageries began to bring cheer to the farm boys of New York about 1815. In this year, Hachaliah Bailey, of Somers, Westchester county, New York, imported “Old Bet,” the first elephant to set foot on American soil since prehistoric ages when they or their nearest kin seem to have been common enough. The next year, Bailey imported other animals, added a lion tamer, and an American menagerie was under way. Somers and the neighboring town of North Salem seem to have been for many years the center of the circus industry in the country, Bailey having enlisted several neighbors in his enterprise. The circus industry seemed to thrive after this start

until the great religious and temperance movement of the 1830's almost put it out of business.

Then, as now, the overly pious frowned upon circuses as potent factors in perverting the morals of youth. Preachers inveighed against them, and the sons and daughters of deacons and elders were kept away from them. Probably they were moral perverters, since the coming of the circus often meant a day of drinking and brawling. Eventually it came to be a boast of the righteous in certain cities and towns that circuses could not perform in their midst. Thus in O'Reilly's *History of Rochester*, published in 1838, it is said, "Theaters and circuses cannot now be found in Rochester. The buildings formerly erected for such purposes were years ago turned to other objects. The theater was converted into a livery stable, and the circus into a chandler's shop."

Another of the social events of every community, still common in most parts of New York, was the rural auction. The death of the head of the house, removal to distant parts, or a change from the homestead to urban life made occasions for an auction. First choice for the season in which to hold such sales was autumn, and then spring or summer. When the owner of the farm or his wife passed away, the nearest kin took what they wanted, and then the countryside was invited in to buy the remainder. An auction usually did away with all the restraints of ownership, and people for miles about wandered through the house; peered into cupboards, closets, and bureaus; fingered linen and china; tried the beds and chairs; and made merry over the possessions of their former friends. The occasion was usually one in which acquaintances who had not seen each other for weeks or months caught up in gossip, discussed politics and the doings of the times as they made purchases which would sooner or later again pass through the hands of the auctioneer when the accumulations of a lifetime in some other household were thrust on the block for sale. These rural auctions were usually enlivened by an auctioneer bursting with humor, eccentricities, and ability to get the best of the buyer, so that a day at an auction, with its bargains, gossip, guffawing, humor, and not a little pathos as household treasures came tumbling out of the door, was always a bright spot in the monotony of country life.



## COUNTRY LIFE A HUNDRED YEARS AGO

The people, fretted by solitary and monotonous lives on farms and in villages, had to have excitement. Hangings until the 1840's were public and every such execution was made a holiday and a festive occasion. Thousands of people came from the countryside to see the sport. Liquor and refreshments were sold in tents and booths along the roadside. The condemned man, sometimes a woman, was escorted to the gallows with a troop of cavalry and a minister who read the confession, if such there were, and not infrequently preached a sermon. In 1829, the great event of the year, to be talked about for half a century to follow, was the leap of Sam Patch over the falls of the Genesee. Friday, November 13 (unlucky day and date), he jumped from a staging 25 feet above the verge of the fall, having first thrown a pet bear into the gulf below. Several thousand people witnessed the event. On striking the water, Sam Patch sank, never to rise again.

Another summer of excitement took place in 1855 when the little villages of Perry and Castile were fearfully excited over the discovery of a "wonderful and hideous monster in the depths of beautiful Silver Lake." Thousands from all over the State and even from distant states flocked to the scene. The serpent was a hoax, of course, a water-proof canvas supported on the inside by coiled wire, painted green, yellow, and red, and made to float or sink as occasion demanded by a bellows connected with it from the shore. It was a bonanza to the community. Hotels, boarding houses, and livery stables grew rich. The Silver Lake sea serpent had been preceded by one in Lake Ontario in 1828 and a little earlier by another in Lake Erie. Soon Seneca Lake had a sea serpent, and a lake in the State was unpretentious indeed if it could not bring forth its serpent. Almost every year some community produced a hocus pocus, the last great one, and possibly the most notable of all being the "petrified man," the Cardiff Giant, "discovered" in 1869 in the little rural hamlet of Cardiff, Onondaga county. The general public and scientists as well came from all parts of the Union in thousands to see the hoax, which eventually passed into the hands of competent P. T. Barnum, who exhibited it in all parts of the world.

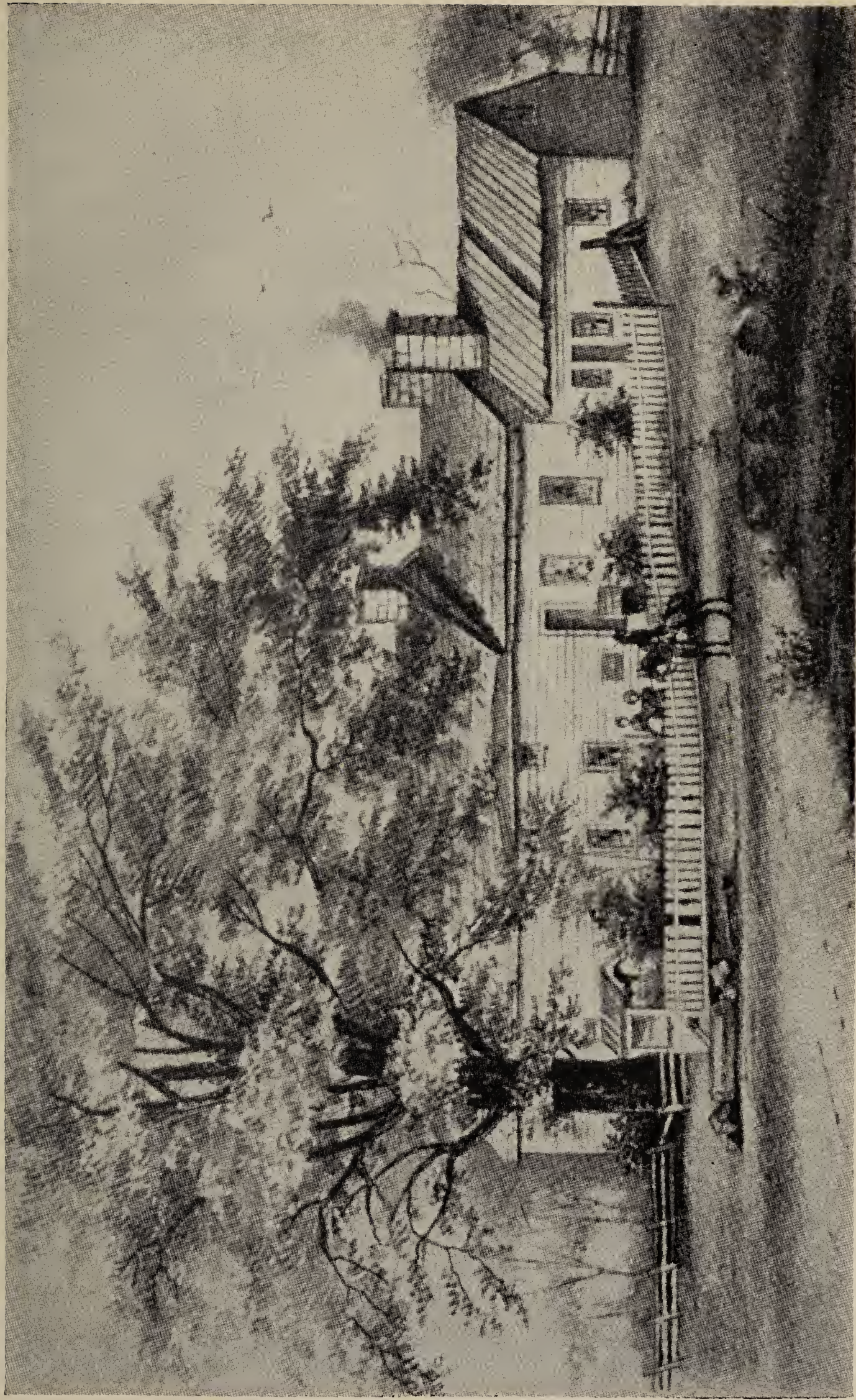
The first generation or two on the farms of New York found small opportunity for cultivating the aesthetic, but the third and

## A HISTORY OF AGRICULTURE

fourth generations began to seek culture and beauty in some form. The settlers in New York had a background of New England and Old World household arts and handicrafts, of well-built houses, steepled churches, streets lined with trees, of village greens, so that as means permitted the crude utility of the first settlers gave way to comfort, culture, and to more or less beauty. Those who have traveled much will tell you that nowhere in the world can be found more substantial, better kept, and more attractive farm homes than up the Hudson, through the Mohawk Valley, and on into the orchards and vineyards of western New York. The houses built in the middle of the last century are often of ideal farm architecture, and happy is the present owner if city collectors have not robbed his domicile of doorways, mantles, and fireplaces of rare beauty, and despoiled the rooms of furniture, glass, and china. Even the homes of the poor built in this period showed individuality in handicraft inside and out. It is only in the standardized age of the last 50 or 75 years that in striving for the unique, the jigsaw and turning lathe, on the one hand, and bare box utility on the other, have appeared to ruin the rural architecture established in the happy, prosperous years for agriculture in the middle of the last century.

New York agriculture seems to have been at its best in many respects in the middle of the nineteenth century. This was a time when the inhabitants of rural New York seemed very nearly independent, since there was a moderate amount of money coming in from the sale of farm products and nearly everything in the way of food and clothing for the family was produced at home. This was the period in the history of agriculture in New York in which possibly there was most local pride in husbandry, a period in which rural society considered itself and was considered a little superior in refinement and influence to that of the towns. Country preachers, country lawyers, and country physicians took rank with leaders of their professions in the cities of the State. The majority of the students in the colleges came from farms and after being graduated returned to the communities in which they had spent their youth. It will be recalled that from the Revolution to the Civil War most of the presidents, governors, senators, and representatives were farmers. Nearly all well-to-do profes-





AN EARLY FARMHOUSE  
The Clinton Homestead at New Windsor







## COUNTRY LIFE A HUNDRED YEARS AGO

sional men in the large cities coveted a farm to which they could retire when a competency had been earned. In short, men who lived on farms and the majority of whom made their living from farms were the most influential men in the country. Country gentlemen of this period constituted a controlling class in the nation as truly as if they had been titled.

Who does not recall with pleasure and approval the picture we have so often had of Washington at Mount Vernon; of Jefferson at Monticello; of Henry Clay at his beloved Ashland; of Webster on his farm in sub-arctic Marshfield; and of the Livingstons, Clintons, and a hundred other men notable in the State and Nation in early New York; all enjoying in their efforts at farming a happiness and peace greater than they had achieved in their public careers, and illustrating the truth of the English saying "farming is the true occupation for a gentleman."

Rural New York began to lose its relative importance soon after the Civil War when big business began its sway. From 1870 down to the present time much of the best blood of the country, as well as most of the worst blood, began to find its way to the city. Men who have done well on farms often move from the country to the city to educate their children, for the advantages of society, for the amusements and entertainments of one kind or another. On the other hand, where a farm does not support its owner well, he often migrates to the city for a better opening in earning a livelihood. Thus it happens that farms in many parts of the State are passing out of the hands of the original families who settled them. As in every other eastern state, there are many, many rural communities in New York in which the character of the population has wholly changed in the last 50 years. It cannot be that this rapid growth of urban centers and the depletion of the country is wholly an unmixed evil, and yet who would say that the movement is altogether wholesome? But this is a problem for the economist and sociologist rather than the historian whose business is simply to record the facts.

In rural New York, a hundred years ago, as now to a much lesser degree, the farmer stood as a rugged individualist among the peoples of the Nation. The soil breeds a type of men that cannot be found in a city; for different kinds of farm land and

## A HISTORY OF AGRICULTURE

different kinds of crops and livestock produce different kinds of farmers. A dairyman is easily distinguished from a fruit grower or a vegetable grower; a poultryman is a distinct type; the man who specializes in hogs quite another type; and the horse breeder can almost be told at sight. Every community has many kinds of farms, and therefore many types of farmers. Even though a number of men are engaged in one kind of farming, every farm unmistakably bears the stamp of its owner's personality. Acres and buildings show at once whether the owner of the farm is cautious or adventuresome, ambitious or shiftless, indolent or industrious, ignorant or educated. City workers have not nearly the scope for character building. Everything in a farmer's life conspires to keep him outside of a common mold—he is rooted in self-reliance. In few other industries is a man so often called upon to meet every situation on his own initiative. To operate a farm, a man must be a carpenter, a mechanic, an engineer, an inventor, as well as a tiller of the soil; he must have the endurance of the hod-carrier or the stoker; he must have the business acumen of a capitalist. The gaunt ranks of the bread lines crowded with the petty specialists of today, among whom are many farm hands, would have had few recruits from the versatile farmers of past generations.



## CHAPTER X

### COUNTRY FOOD AND DRINK

**W**E have been told so often of the privations of the Puritans and of their zealousness for simple and righteous living that we have come to think they were addicted to making themselves uncomfortable in all matters of life. As one reads the tales of travelers it does not appear that the New England Puritans, nor their descendants in New York, ever starved themselves when food could be had. Eating and drinking were the commonest and seemingly the most enjoyable pastimes in every period of rural New York. The work of planting, garnering, preserving, clearing, and house building was accompanied by an abundance of food and drink when the happy days of plenty were reached. The products of the farm were not as varied then as now, but natural ingenuity in concocting palatable dishes and in devising ways and means of preserving perishable foods provided most extraordinary menus on feast days. A menu for a Thanksgiving dinner set before the guests at a private house in Geneva, Thanksgiving Day, 1831, mentions roast beef, turkey, duck, ham, sausage, potatoes, yams, succotash, pickles in assortment, nuts in assortment, raisins, pears, peaches, pie, tarts, creams, custards, jellies, floating islands, sweetmeats in assortment, and a long list of wines, together with brandy, rum, egg-nog, and punch.

The food and drink offered in rural New York a century ago was assuredly hearty. For most part it was home-produced, with few exotic flavorings. The nice artistry, restraint, and grace and elegance in serving which make eating delicate feasting nowadays were scarcely observed in those days of robustuous living.

One cannot but have great admiration for the farm housewife in a newly settled country. The settler's wife in New York had to experiment with almost wholly new foods. Occasionally she

borrowed from the Indians. She learned from the Indians how to cook Indian corn, pumpkins, squashes, and beans and how to make succotash. From them she got a knowledge of cranberries, huckleberries, wild plums, and, in times of starvation, a great assortment of roots, herbs, and wild fruits which had too little food value or were too unpalatable to continue to use in times of plenty. The early farm housewife showed wonderful ingenuity in preserving foods, especially by drying. Canning and preserving required glass or pottery which was so expensive as seldom to be had. Therefore, the housewife "dried" raspberries, blackberries, huckleberries, corn, beans, pumpkin, squash, apples, peaches, and pears in abundance. These dried products in the winter formed a part of every meal and supplied appetizers, vitamins, and regulators without which early settlers would have been badly off as to diet. The apple, in particular, was indispensable in early cookery. In old recipe books, one finds recipes for apple pies, apple-dumplings, apple-tarts, apple-puffs, apple-slump, apple-crowdy, apple-sauce, apple-cheese, baked apples, dried apples, cider, and apple-jack.

The marvel is that farm and inn entertainment was nearly as good as it was when the facilities for cooking are taken into consideration. Cooking was done in fireplaces by boiling in pots suspended over a wood fire from a crane. Frying or broiling was best accomplished in a spider set on coals in front of the fireplace. Roasts were turned and browned on a spit. Bread, cakes, and all baked goods came from brick ovens out of doors or in tin ovens set in front of the fireplace. A special day in each week was set aside for baking. A bake kettle set on coals with coals heaped on the lid gave quality which the modern oven cannot attain. All-night corn pone so baked sounds most appetizing. The wood used in fireplaces, either for cooking or for warming houses, was cut three feet long and rested on heavy andirons. Very often the chimney, especially in the old log houses, was made of sticks and mud and plaster, and much care had to be used in managing cooking in cold weather. Logs 18 or 20 inches in diameter rested on andirons of flat stones as back logs. Cook stoves, which came into use about 1850, did not supplant fireplace cooking and out-of-door ovens for two or three decades.





GRIDIRONS, TOASTERS, AND ROASTERS  
*Bul. 141. U. S. National Museum*





# COUNTRY FOOD AND DRINK

## PROGRAMME

• • •

### TOASTMASTER

Dr. Liberty Hyde Bailey

### INVOCATION

Rev. Calvin H. French

*Pastor, Madison Avenue Presbyterian Church*

### SPEAKERS

Hon. Arthur Mastick Hyde

*Secretary of the Department of Agriculture  
of the United States*

Hon. Franklin Delano Roosevelt

*Governor of the State of New York*

Dancing — old and new  
Reincarnations

---

## MENU

Fruit Cup

Roast Turkey — Stuffing — Gravy

Mashed Potatoes — Squash in Shell

Plum Jelly — Pickles

Coleslaw

Johnnycake

Pumpkin Pie — Cheese

Coffee

YE OLDE-TIME FARM SUPPER GIVEN BY THE NEW YORK STATE  
AGRICULTURAL SOCIETY IN HONOR OF THE ONE HUNDREDTH  
ANNIVERSARY OF ITS FOUNDING, 1832-1932

## A HISTORY OF AGRICULTURE

No farmer, and but few of the inns, put up ice. The ice age in the kitchen, now supplanted by the electric refrigerator age, came and went in much less than a hundred years. Fortunate was the farm wife who could command a cool spring or running water in her milk room. Every thunder storm "soured" the milk. Butter was hung in pails down the well. Cool, pure, palatable water was so highly thought of that a farmer bragged of a good supply, and sampled that which his neighbors gave him as an Englishman tastes tea or a connoisseur of wines sips a rare vintage from his friend's cellar. Inns made capital out of high quality in potable water and scarcely less out of a cool, running stream in which perishables in the summer could be kept from spoiling. Timothy Bigelow, on a tour through New York from Albany to Niagara Falls in 1805, records that he found settlers hanging fresh meat wrapped in flannel in trees to keep it from spoiling. By such treatment, the settlers told him, "they could keep beef fresh four or five days in hot weather."

A common sight in every farmyard in the cool days of October and November was home-killed hogs dangling in the cooling breeze. Nearby a big black kettle boiled for scalding and another was in reserve for "trying out" lard. Every thrifty farmer slaughtered his own hogs and filled barrels with salt pork, tubs with lard, and a smokehouse with hams and sides of bacon to cure. "Hog-killin" was an important period in the farm economy of the times. An amazing number of products from "hog-meat" were stored away for the family larder—sausages, salt pork, ham, bacon, lard, souse, headcheese, scrapple, cracklings, spareribs, jowls, pickled pigs' feet. Not only pigs but often oxen and cows which had been fattened for slaughter met their fate in the dawn of early morning, so that the carcass would be hardened and ready to cut and pickle before night. So pickled, smoked, and potted, meats of the several kinds were kept from butchering time to butchering time. These products of the farm were more highly esteemed than the fish and game of the lakes and forest. Indeed, in the very early days, deer were more plentiful than pigs and venison was traded for salt pork pound for pound. A farm that was not self-sufficient as to meats was poorly managed indeed.



## COUNTRY FOOD AND DRINK

Sometimes neighborhood families killed beeves in turn and divided the meat.

William Cobbett, an Englishman, author of several notable books on agricultural topics, one of which is *Cottage Economy*, dealing with cooking, brewing, and the like, seems to have enjoyed American foods during a year's residence in the United States and gives the following bill of fare for an American family on Long Island, from which it can be seen how well farmers fared as to meats. In all conscience, there is enough, and certainly it sounds appetizing. He says:

"As to the manner of living in the country, I was, the other day, at a gentleman's house, and I asked the lady for her bill of fare for the year. I saw fourteen fat hogs, weighing about twenty stone a piece, which were to come into the house the next Monday; for here they slaughter them all in one day. This led me to ask, 'Why, in God's name, what do you eat in a year?' The bill of fare was this, for this present year: about this same quantity of hog-meat; four beeves; and forty-six fat sheep. Besides the sucking pigs (of which we had then one on the table), besides lambs, and besides the produce of seventy hen fowls, not to mention good parcels of geese, ducks, and turkeys, but, not to forget a garden of three quarters of an acre and the butter of ten cows, not one ounce of which is ever sold! What do you think of that? Why, you will say, this must be some great overgrown farmer, that has swallowed up half the country, or some nabob sort of merchant. Not at all. He has only one hundred and fifty-four acres of land, (all he consumes is of the produce of this land), and he lives in the same house that his English-born grandfather lived in.

"When the hogs are killed, the house is full of work. The sides are salted down as pork. The hams are smoked. The lean meats are made into sausages, of which, in this family, they make about two hundred weight. These latter, with broiled fish, eggs, dried beef, dried mutton, slices of ham, tongue, bread, butter, cheese, short cakes, buckwheat cakes, sweetmeats of various sorts, and many other things, make up the breakfast fare of the year, and, a dish of beef steakes is frequently added.

"When one sees this sort of living, with the houses full of good beds, ready for the guests as well as the family to sleep in, we

cannot help perceiving, that this is that 'English Hospitality,' of which we have read so much; but, which Boroughmongers' taxes and pawns have long since driven out of England."

No writer, now or ever, could describe farm life and farm things so well as Cobbett, and the temptation is too great to pass by another account of American foods from his pen, as follows:

"In the meat way, we have beef, mutton, bacon, fowls, a calf to kill in a fortnight's time, sucking pigs when we choose, lamb nearly fit to kill; and all of our own breeding, or our own feeding. We kill an ox, send three quarters and the hide to market and keep one quarter. Then a sheep, which we use in the same way. The bacon is always ready. Some fowls always fatting. Young ducks are just coming out to meet the green peas. Chickens (the earliest) as big as American partridges (misnamed quails), and ready for the asparagus, which is just coming out of the ground. Eggs at all times more than we can consume. And, if there be any one, who wants better fare than this, let the grumbling glutton come to that poverty which Solomon has said shall be his lot. And, the great thing of all, is, that here, every man, even every laborer, may live as well as this, if he will be sober and industrious."

Cooks were hard put to it for sweetening in the United States down until after the Civil War. Granulated sugar was unknown. Loaf sugar was so expensive that it could be had only by the wealthy, and even they kept it for company. Much of the loaf sugar came in large cones, wrapped in blue paper which had been dyed with indigo. Thrifty housewives saved the blue paper, soaked out the blue, and used it as a dye. Those who used loaf sugar made a great show in cutting it in company, a task for the hostess, while the host did the carving. The cut sugar was displayed on silver salvers, cut with specially made scissors and put in place with silver tongs. In the families of less well to do the sources of sweetening were maple sugar, honey, cheap grades of brown sugar, and molasses which came from the West Indies in vast quantities and was to be found in every home in various grades. But most of the sweetening in farm homes came from a sugar factory on the farm—the sugar bush. The delicacies that



## COUNTRY FOOD AND DRINK

can be made from maple sugar and maple syrup are so many and so savory that the lack of cane and beet sweetening was not greatly felt. Sorghum was introduced in America from two widely separated regions in 1853 and 1857 and furnished a farm supply of syrup and sugar until the cheaper cane products drove sorghum out of cultivation.

Much of the sweetening from the time of the introduction of the honey bee down to the present has come from honey. The introduction of European honey bees into the flowery forests, plains, orchards, farms, and gardens of America must have been a grand epoch in bee history. Nowhere on earth could the honey bee find greater diversity and more abundant nectar than in North America. The German or black bee was introduced into New England in 1638 and seems to have been rapidly distributed throughout the colonies. Denton in his *Brief Description of New York*, in 1670, says, "You shall scarce see a house but the South side is begirt with Hives of Bees, which increase after an incredible manner." And Thomas, 1698, writing of near-by Philadelphia, says: "Bees thrive and multiply exceedingly,—the Sweeds often get great store of them in the woods where they are free for any Body. Honey (and choice too) is sold in the Capital City for Five Pence per Pound. Wax is also plentiful, cheap, and a considerable Commerce."

Soon after its appearance on the Atlantic seaboard, the bee found its way over all the temperate parts of the continent, and honey bees began to fill countless trees and hollows in rocks with honey, and millions of farmers in time came to keep bees as they kept domesticated animals. For many years after the bee found a home in North America, there seem to have been no diseases to keep their increase in check, and "honey trees" with 50 or even 100 or more pounds of honey, clear and clean, were everywhere common. This brought about the industry of "lining bees," an occupation followed by one or more men in nearly every rural community. The commonest method of lining bees was to put honey in a box with a glass lid; an active bee was brushed in from some flower and when it could be seen that he had sucked his fill, the lid was opened. Released, the bee made for his home colony,

and the bee-liner followed as best he could, using one bee after another until the bee tree was found.

Drinking was a universal custom of the whole country from the first settlement at Jamestown down to the middle of the nineteenth century. Strong drink of one kind or another was served at births, weddings, and funerals; used for colds or sunstrokes; on tap at barn, house, or church raisings; at dances, huskings, and bees; during haying, harvesting, and threshing; and every caller, minister, laymen, or social visitor, was expected to take something for the stomach's sake. Social classes, even after democracy came, had each its own drinks. The upper classes drank port, madeira, claret, and burgundies. Commoners made their own fruit brandies, ciders, juices, and wines. In the lower stratum healthy thirst was slaked with rum and apple-jack. All refreshed themselves with beer and ale; nearly all caroused on whiskey. Every country newspaper carried several or many advertisements such as the following:

“Howes & Tallcott  
Offer for Sale at their Mills in  
the Town of Phelps 100 Barrels of  
Flour and 2,000 Gallons of Whiskey.  
Phelps, Feb. 28, 1814.”

One wonders why a miller offered whiskey for sale. The millers of the time made whiskey from their best grain; flour and feed from the second grade.

In the chapter on Sustaining Industries, some account has been given of brewing and distilling. In all conscience, there seem to have been breweries and distilleries enough in the State until the excise laws of the early nineteenth century reduced their numbers. Probably in 1800, and for a decade or two afterwards, there were more breweries and distilleries in New York than there were gristmills. More beer seems to have been consumed by the people in eastern New York than by those in the western part of the State. Whiskey and brandy were the easiest means of transporting the produce of the farm in grains and fruits to the market, if any great distance had to be compassed. Western New York



found ready sale for whiskey and brandy in the seaboard cities, and shipped great quantities of it. Stills for making whiskey and brandy studded the shores of the Finger Lakes, the Genesee, and Lake Ontario. There are no census reports to tell us how many, but the accounts of travelers give evidence. Thus, in the little hamlet of Geneva in 1800 there were 13 stills but only four gristmills. Coxe's plan for a model settlement called for one gristmill and one brewery, but 10 distilleries. (See page 107.) Good whiskey, corn, wheat or rye, with the "little brown jug" thrown in, sold for twenty-five cents a gallon. Since wine was not manufactured in any quantity in New York until the middle of the nineteenth century, this drink was little used except by those who could pay a handsome price for it.

Accounts of travelers throw little light on what people on the farms drank in colonial New York and the early years of the Union, but peeps in several old leather-bound ledgers kept by storekeepers give fairly accurate information. The average farm family seldom drank tea and coffee, it would seem from the prices charged and the infrequency with which these two articles are mentioned in the old account books. At from 50 cents to \$1.50 a pound for tea and 20 to 40 cents for coffee, when butter was selling for 12½ cents a pound and eggs at six cents a dozen, it is certain that not many farmers exchanged butter and eggs for tea and coffee. Strangely enough, the higher priced tea appears more often in ledger accounts than the cheaper coffee. This may have been because of a preference for tea, but probably the choice between the two fell to tea because there were several fairly good substitutes for coffee—parched corn, parched wheat, rye or barley, forerunners of Postum, were in pretty general use. But there were no substitutes for tea nearly as satisfactory as parched grains for coffee. Cider was undoubtedly much commoner than either tea or coffee.

Early immigrants to America from Europe were accustomed to the free use of cider, and from the very first settlements in New York cider was a common drink. Apples were grown chiefly to make cider. In the cellars of the well-to-do, a barrel of cider was always on tap, a pitcher full was on the table at every meal, the day was started with a draught of cider and was ended in the

same way. The total consumption of this beverage was prodigious in homes and it was an article of export to towns, cities, and even to the West Indies. Individual farmers made from 25 to 50

NO. 21, SENECA-STREET.

February 15th, 1831.



**B**Y the present sleighing, the subscriber has received from New-York and Albany, in prime order,

- 1 barrel superior OLD GIN
- 2 boxes fresh LEMONS
- 10 do Paper Tobacco
- 5 drums fresh Figs
- 1 cask Currants
- 10 M. Spanish Segars
- 4 cases Champagne, in pints
- 1 keg Gum Copal

And a number of other articles, which again *completes* his extensive assortment of goods, and which he offers low.

H. H. MERRELL.

barrels of cider. In 1767, it is estimated that 1.14 barrels of cider per capita were drunk in Massachusetts; probably as much was used in New York. John Taylor, of Virginia, in his *Arator* expressed an opinion that was probably shared in all the colonies where cider could be made:

“Good cider would be an actual saving of wealth, by expelling foreign liquors; and of life, by expelling the use of ardent spirits. Apples are the only species of orchards at a distance from cities capable of producing sufficient profit and comfort to become of considerable object to a farmer. The apple furnished some food for hogs, a luxury for his family in winter, and a healthy liquor for himself and his laborers all the year.”

In the adjoining colony of New Jersey, William Coxe, noted pomologist, mentions with approval that 5,000 hogsheads of cider were made annually by a single religious society. Apple growing on Long Island, Staten Island, and in the Hudson River Valley had its beginning and for 200 years had almost its sole sustenance in the demand for cider.

The ledgers of storekeepers and the accounts of travelers show that farmers 100 years ago made a distinction between “apple juice” and “cider.” “Apple juice” was the unfermented product, and “cider” was apple juice fermented until all the sugar had turned into alcohol—hard cider. It would appear that cider was one of the commonest commodities in the country and village stores in newly settled New York. It is more often quoted as an exchange commodity than apples or potatoes or any other fruit



## COUNTRY FOOD AND DRINK

or vegetable, and appears nearly as frequently as butter and eggs. Apple juice and cider were legal tender for the cobbler, the tailor, the lawyer, the doctor, and there is at least one record in accounts at hand of a farmer's paying for his daughter's schooling with cider. Whiskey seems to have been common enough, quite too common for the good of most farm communities, and was cheaper than cider, if one bought on the basis of the alcoholic content of the two

products. But even in those days whiskey was hardly a family drink, while all of the family, servants, indoor and out, seemed to have used cider with appetite as the only limit. There were few orchards or even trees of named varieties of apples, and since really good cider can be made only from certain varieties—the russets are best—much of the cider consumed must have been poor stuff.

It was not until a century after Harman Rutgers (see page 156) “brewed the first beer in my new brewery” that brewing began to fall into disrepute. One of the first teetotalers to inveigh against it was the sturdy old English farmer, writer, and economist, William Cobbett, hitherto quoted, who spent a year on Long Island and published a book on his experiences. Writing of drink, he says:

“I am afraid to speak of drink, lest I should be supposed to countenance the common use of it. But, protesting most decidedly against this conclusion, I proceed to inform those who are not content with the cow for vintner and brewer, that all the materials for making people drunk, or muddle headed, are much cheaper here than in England. Beer, good ale, I mean, a great deal better than the common public-house beer in England; in short, good, strong, clear ale, is, at New York, eight dollars a barrel; that is, about fourteen English pence a gallon. Brew yourself, in the country, and it is about seven English pence a gallon; that is to say, less than two pence a quart. No Boroughmongers' tax on malt, hops, or beer! Portugal wine is about half the price

### GROCERIES.

Hyson Skin and Bohea Teas; Muscovado, Lump and Havanah Sugars; Cogniac Brandy; old St. Croix Rum; Pierpont and Country Gin; old Madeira and L. P. Teneriffe Wines; Plug and Paper Tobacco; Coffee; Pepper; Alspice; Cassia; Nutmegs; Ginger; Indigo; Copperass; Allum; Shaving Soap; English Mustard.

that it is in England. French wine a sixth part of the English price. Brandy and Rum about the same in proportion; and the common spirits of the country are about three shillings and sixpence (English) a gallon. Come on, then, if you love toping; for here you may drink yourselves blind at the price of a sixpence."

Taverns and places of public refreshments were usually distinguished from dwelling houses by descriptive signs as in the mother countries. The bald eagle, symbol of national glory, was a common emblem adorning inns. Masonic figures were popular before the trouble-making Morgan episode in 1826. Or, the sign might picture a horse, a lion, a whale—absurd conceptions harking back to a time when few people could read.

The inns in newly settled parts of the State must have been execrable. DeWitt Clinton, in a journal kept while he was on his tour in western New York in 1810, although used to traveling in a new country and not a faultfinder, in page after page in his journal complains of the inns at which he had to stop. The following account of a night in one of these inns gives an idea of what travelers had to put up with in the newly settled parts of New York at the beginning of the nineteenth century:

"Col. Porter erected his tent and made his fire on the hill, where he was comfortably accommodated with the young gentlemen. I reconnoitered upstairs; but in passing to the bed, I saw several dirty, villainous-looking fellows in their bunks, and all placed in the same garret. I retreated from the disgusting scene, and left Gen. North, Mr. DeWitt, and Mr. Geddes in the undisputed possession of the attic beds. The Commodore and I took possession of the beds below, but previous to this, we were assured by an apparently decent girl, that they were free from vermin, and that the beds above were well stored with them. Satisfied with this assurance, we prepared ourselves for a comfortable sleep, after a fatiguing day. But no sooner were we lodged, than our noses were assailed by a thousand villainous smells, meeting our olfactory nerves in all directions, the most potent exhalation arising from boiled pork, which was left close to our heads. Our ears were invaded by a commingled noise of drunken people in an adjacent room, of crickets in the hearth, of rats in the walls, of dogs under the beds, by the whizzing of mosquitoes about our





OLD TAVERN SIGNS  
Above, A Famous Tavern at Avon







## COUNTRY FOOD AND DRINK

heads, and the flying of bats about the room. The women in the house were continually pushing open the door, and pacing the room for plates, and knives, and spoons; and the dogs would avail themselves of such opportunities to come in under our beds. Under these circumstances sleep was impracticable; and, after the family had retired to rest, we heard our companions above rolling about restless in their beds. This we set down to the credit of the bugs, and we hugged ourselves on our superior comforts. We were, however, soon driven up by the annoyance of vermin. On lighting a candle and examining the beds, we found that we had been assailed by an army of bedbugs, aided by a body of light infantry in the shape of fleas, and a regiment of musquito cavalry. I retreated from the disgusting scene and immediately dressed myself, and took refuge in a segar."

In 1790, Viscount de Chateaubriand, a distinguished French author, came to North America. He visited, as did most foreigners then and now, Niagara Falls. Leaving Philadelphia, where he had been the guest of President Washington, he came to New York, up the Hudson to Albany, and then on to Niagara through a country just being opened up to settlers. He published an account of the trip, one of the most engaging of all books foreigners have written about America, which unfortunately contains little about agriculture but much about institutions and the people and their way of living. He gives this account of a caravansary at which he spent a night:

"Entering I stood stupefied at the aspect of an immense bed constructed around a stake; each traveler took his place in this bed with his feet toward the stake in such manner that the sleepers were ranged like the spokes of a wheel. After some hesitancy I introduced myself into this machine and was falling asleep when I was rudely awakened by the snoring of my Dutch guide who was extended fast asleep at my side. I never felt greater horror in my life. I threw myself out of the bed, cordially cursing the usages of first settlers and went asleep in my manteau under the light of the moon."

It was the universal experience of travelers that they must sleep double, in threes, or even fours, in the inns of newly settled regions. Foreign travelers complained bitterly of having to double

up with strangers in inns and farmhouses where they stopped. Among the nuisances which they record are bedbugs and fleas, which according to their accounts, were omnipresent. Minor annoyances were crying children, hardness of the beds, chirping crickets, clouds of mosquitoes, flying bats, cats and dogs in the sleeping-room, serenades of jingling cowbells, and the songs, loud talking, and yelling of fellow travelers who had succumbed to the taste for strong drink. They objected also to the mottoes on the walls of inns, such as "Where Liberty Dwells, Here is My Country," "The Home of the Brave and the Land of the Free," "Liberty and Equality," "All Men are Born Free and Equal," "Liberty or Death." Nearly every inn had a liberty pole from which floated the Stars and Stripes, or, gall to an Englishman, under the national emblem hung some flag or pennant captured from the British in the Revolution or the War of 1812.

There was no such thing, travelers said, as a room to one's self or a possibility of locking a door when one went to bed. The wayfarer took possession of the first bed he found unoccupied and failing to find one empty lay down on one beside its occupant without so much as asking leave or caring who the sleeper might be. A traveler who demanded clean sheets must pay well for having them and be snubbed as an aristocrat in the bargain. Bed-clothes, he would be told, were changed at stated times and not to suit the whims of lodgers. "What can be the reason for that vulgar, hoggish custom, common in America of squeezing three, six, or eight beds into one room?" an English traveler in America in 1797 asked in a letter to a friend in America. To this and to all similar inquiries there was a universal answer, "the custom of the country." "Brutality, negligence, and filching," says another visitor, "are as naturally expected, by people accustomed to traveling in America as a mouth, a nose, and two eyes are looked for in a man's face."

Much allowance must be made for the tales of travelers, English in particular, who came to the country at this time, but they are in such general accord that the American wayside inn was something to be dreaded that we must believe them. From the reception until the landlord speeded parting guests, there was little of pleasure or of comfort. Service in most inns was wretched. The



## COUNTRY FOOD AND DRINK

guest had often to take care of his own horse or "bawl for the hostler" with the landlord looking on. English visitors were much disturbed because, as nearly all record, as soon as their noses were in the tavern they were plied with questions by every man, woman, and child. They objected to eating at a common table, the alternative of which was to wait hours for a private meal. Among the posted "rules" of one tavern were these prohibitions: "No boots to be worn in bed." "No more than five to sleep in one bed." "No beer allowed in the kitchen." In the morning a guest went out of doors to wash his face and used a towel in common with all other guests.

The leading inns at such stage centers as Albany, Troy, Utica, Ithaca, and Geneva presented scenes of animation that modern hotels, even in the thick of the automobile traffic, can scarcely rival. The bustle of arrival and departure with the crack of the whip, cries of the driver, hostlers' busy hitching and unhitching, was terrific and continuous. Private conveyances stood small chance of service in competition with the stage coaches, but yet there were many such. The old inn combined the functions of a modern hotel, a railway station, and a political meeting. All ate at a common table, a picturesque spectacle. There were then, as now, good and bad inns. Travelers are hard to please, and probably they have recorded more of the unpleasant than of the agreeable sojourns made in American inns.

Very often the inns in the early settlements could furnish little to eat excepting salt pork and potatoes, despite the fact that venison, fish, and wild fowl might be had at small cost or for the trouble of hunting it. Salt pork indeed was the food of foods for Americans. It was the standard food in the army, the navy, and for woodsmen as well as in public inns. James Fenimore Cooper, in the *Chainbearer*, gives a conversation which well illustrates how commonly salt pork was used in country inns. The site of the inn in the story is in the Champlain Valley. The conversation follows:

[Landlady:] "You are lucky, Major Littlepage in not having come among us in one of what I call our 'starving times—and awful times they be, if a body may say what she thinks on em.'"

[Major Littlepage:] "Starvation is a serious matter at any

## A HISTORY OF AGRICULTURE

time, though I did not know you ever were reduced to such difficulties in a country as rich and abundant as this."

[Landlady:] "Of what use is riches and abundance if a man will do nothing but fish and shoot? I've seen the day when there wasn't a mouthful to eat, in this very house, but a dozen or two of squabs, a string of brook-trout, and maybe a deer, or a salmon from one of the lakes."

[Major Littlepage:] "A little bread would have been a welcome addition to such a meal."

[Landlady:] "Oh! as for bread, I count that for nothin'. We always have bread and potatoes enough; but I hold a family to be in a desperate way, when the mother can see the bottom of the pork-barrel. Give me children that's raised on good sound pork, afore all the game in the country. Game's good as a relish, and so's bread; but pork is the staff of life! To have good pork, a body must have good corn; and good corn needs hoeing; and a hoe isn't a fishpole, or a gun. No, my children I calkerlate to bring up on pork, with just as much bread and butter as they may want!"

Early inn-keepers were often leading men in the community. An astonishing number of them bore military titles—captains, majors, colonels, and an occasional general. As early as 1771, John Adams records that Landlord Pease of Enfield, Conn., "was the great man of the town; their representative and so forth as well as tavern keeper, and just returned from the General Assembly at Hartford." Foreigners made many comments on the easy manners of the military landlords. They were accustomed in the old country to subserviency in tavern keepers and surprised at the high and mighty manners of American inn-keepers. Perhaps Adam Hodgson, who traveled in Virginia in 1820, gave as good an account as any of the many travelers who visited our shores. What Hodgson saw in the inns of Virginia was much the same as he would have found in New York:

"Every ten or fifteen miles you come either to a little village, composed of a few frame houses, with an extensive substantial house, whose respectable appearance, rather than any sign, demonstrates it to be a tavern, (as the inns are called,) or to a single house appropriated to that purpose, and standing alone in the woods. At these taverns you are accosted, often with an easy





BEEKMAN ARMS, RHINEBECK, N. Y.

Beekman Arms, "the oldest hotel in America", was built in 1700 on land sold by Henry Beekman out of his patent from Holland. The tavern has been rebuilt several times. Here the trapper, traveler, adventurous pioneer, and the savage stopped two hundred years ago as guests or to refresh themselves in the tap. General Montgomery lived in the old tavern before his ill-fated expedition to Quebec in 1775. Later, Washington, Lafayette, Schuyler, Arnold, Hamilton, Aaron Burr, DeWitt Clinton, Silas Wright, Martin Van Buren, and a long list of others of the great in the Nation's and State's history were guests.





## COUNTRY FOOD AND DRINK

civility, sometimes with a repulsive frigidity, by a landlord who appears perfectly indifferent whether or not you take anything for the good of the house. If, however, you intimate an intention to take some refreshment, a most plentiful repast is, in due time, set before you, consisting of beef-steaks, fowls, turkies, ham, partridges, eggs, and if near the coast, fish and oysters, with a great variety of hot bread, both of wheat flour and Indian corn, the latter of which is prepared in many ways, and is very good. The landlord usually comes in to converse with you, and to make one of the party; and as one cannot have a private room, I do not find his company disagreeable. He is, in general, well informed and well behaved, and the independence of manner which has often been remarked upon, I rather like than otherwise, when it is not assumed or obtrusive, but appears to arise naturally from easy circumstances, and a consciousness that, both with respect to situation and intelligence, he is at least on a level with the generality of his visitors. At first I was a little surprised, on enquiring where the stage stopped to breakfast, to be told, at Major Todd's;—to dine? At Col. Brown's—but I am now becoming familiar with these phenomena of civil and political equality, and wish to communicate my first impressions before they fade away."

It is to be feared that many farming communities suffered much in the old days from tavern-haunting. Every hamlet had its taverns and nearly every other house on the main turnpikes was a public house. The idle, the vicious, and the weak, then as ever, spent too much time in these resorts. Inordinate drinking and idling in grog rooms of taverns were vices so common after the Revolution and until the temperance reform which in 1830 came to have its influence, that whole agricultural communities were sometimes demoralized. Conditions became so bad that temperance reform became imperative. Shiftless husbandmen were usually tipplers or idlers at the wayside inn.

The tavern was the busiest place in any community. In the best of them, the house was filled from garret to bar-room with travelers, coming and going at all hours of day and night. Besides these legitimate customers there were the loafers and on holidays and rainy days men of better repute who came to play various games of skill and strength. Here men gathered to pitch quoits,





## COUNTRY FOOD AND DRINK

sequence of this practice the number of houses which bear the appellation is already enormous. Too many of them are mere dram-shops of no other use than to deceive, disappoint and vex travelers and to spread little circles of drunkenness throughout the State. A traveler after passing from inn to inn in a tedious succession finds that he can get nothing for his horse and nothing for himself."

Dr. Dwight's remedy for the wretched condition of inns in New York and New England was to license "only one where there are now five or six." The evil of too many inns was general throughout the State and there were many protests. In 1810, the people of Meredith, Delaware county, made a formal and vigorous protest against the growth of intemperance and crime caused by public inns. In that small town there were ten hotels besides a number of distilleries. The citizens of the place were forced to band together in behalf of order and decency.

While travelers at inns were expected to double up or sleep three or four in a bed, "bundling" seems not to have been permitted so generally in New York inns and homes as it was in those of Pennsylvania and some of the New England states. Bundling was a pernicious custom, practiced to a degree that can now scarcely be credited, in which lovers lay in a bed without undressing, an expedient in vogue to keep warm in a cold climate and because of a scarcity of beds. The Rev. Samuel Peters, discoursing at length on the custom of bundling in Connecticut and other parts of New England, wrote: "Notwithstanding the modesty of females is such that it would be accounted the greatest rudeness for a gentleman to speak before a lady of a garter, a knee, or leg, yet it is thought but a piece of civility to ask her to bundle; a custom as old as the first settlement in 1634." Parents frequently permitted their daughters to bundle with travelers, and while it was understood that innocent endearments should not be exceeded, yet this simple domestic make-shift occasionally had unpleasant moral aspects. After it had been practiced a century or more, the custom came under judicial cognizance in New York in 1804, and the evils of bundling were brought before the public so strongly that the custom came into disrepute in this State as it did later in neighboring states.

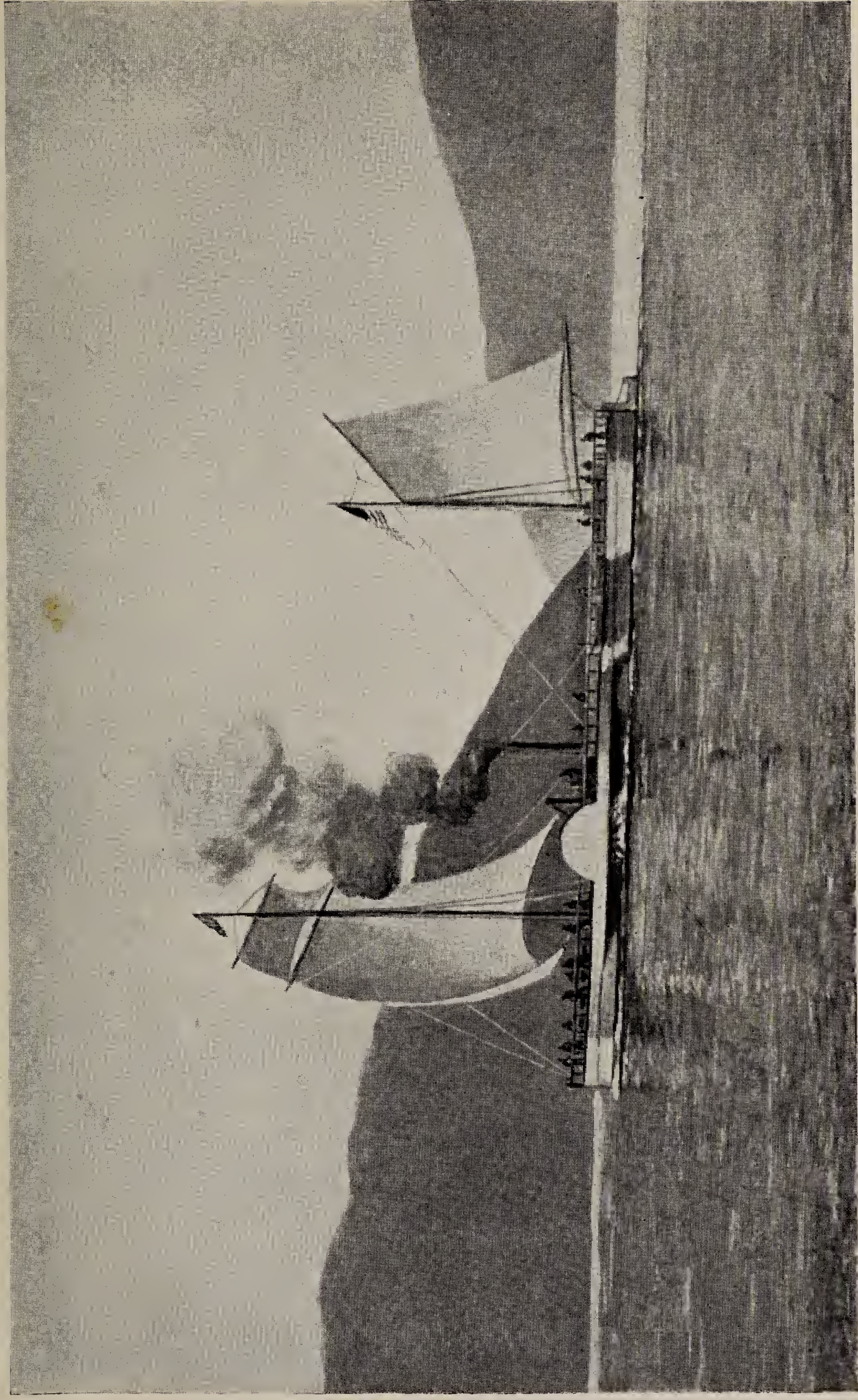
## CHAPTER XI

### WATERWAYS

WHEN, in 1807, Robert Fulton made the first trip up the Hudson in a steamboat, he opened a new era for New York agriculture. The main arteries for transportation of farm produce had been down the Hudson to New York and along the shores of Lake Ontario and Lake Champlain to the St. Lawrence, thence to Montreal and Quebec, and by sail—a slow and costly means of transportation. When winds were light it took as much as two weeks to sail the 150 miles between New York and Albany. Aaron Burr writes of a trip from New York to Albany in which he changed from sloop to wagon, from wagon to canoe, and from canoe back to wagon to gain time in reaching his destination. Rafts and batteaux were laboriously poled or rowed down the Mohawk, Allegany, Genesee, Black, and smaller waterways with farm and forest products. John Fitch and James Rumsey, working independently, built and launched steamboats in 1787, but the first successful craft to be propelled by steam was Robert Fulton's *Clermont* which, with unearthly noises and belching fire and flames, puffed its way up the Hudson from New York to Albany, in 1807.

The *Clermont* was insignificant indeed for such an epoch-making event. She was 100 feet long, 12 feet wide, and seven feet deep. On her maiden trip she took 28 hours and 45 minutes to steam from New York to Albany. Now the passage is made by the great steamboats on the Hudson in 10 or 12 hours. Advancement in steamboat building was made apace in the years that followed; in two or three decades palatial steamers with romantic names, string bands, deckhand quartets, and steam caliopes to entertain the passengers were plying the river. For several decades, steamboats on all American waterways burned wood under their boilers. The smoke stacks were large and out of them poured volumes of black smoke, with which at night intermingled showers of sparks. The dwellers on the banks of the Hudson were





THE CLERMONT AS SHE LOOKED A FEW MONTHS AFTER LAUNCHING

*From a drawing by Samuel Ward Stanton*







## WATERWAYS

terrified by the strange sight of the first steamer going up the river. The tale is told of one farmer who hurried home after the first glimpse and told his wife that he "had seen the devil going up the river in a sawmill." Crews of sailing vessels hid beneath their decks at the first sight of a steamboat; others besought the Almighty to protect them from the horrible monster which lighted its path by the fire it vomited.

Fulton and Livingston were given a monopoly of steam navigation on the Hudson by the State Legislature covering a period of 20 years. The monopoly was not long maintained and soon there were several competing lines. In 1826 there were 16 steamboats on the Hudson, a number which increased to over a hundred by 1840, when steamboating reached its height, to fall rapidly as railroads began to demonstrate their usefulness. The chief companies operating in 1840 were the Union Line, the North River Line, the Connecticut Line, the North River Association Line, the Troy Line, the O. & D. Transportation Company, the Steam Navigation Company, the Night Line, Eagle Line, and the Day Line. These rival companies for a time coined money. In the forties it was not uncommon for 10 or 12 boats daily to leave each of the two ports Albany and New York, and nearly as many left one or another of the several ports between the two large cities.

For a few years passengers were afraid to venture on the unwieldy, noisy crafts built and run by the Fulton-Livingston Company. It took many years to perfect the manufacture of boilers for steamboats, and nearly every season one or two blew up with loss of life and the destruction of property. But even so, as an alternative to the cramped quarters of the stage-coach or the slowness of sailing craft, the freedom of movement on the deck of the steamboat and the quick passage brought great popularity to the steamers. Relief from heat and dust in summer and the ease of motion added comforts much appreciated by those who must travel. As early as 1809 the stage-coaches on the east side of the river ceased to operate during the summer. The stage lines on the west side held out much longer since they ran further inland, and largely served local traffic. For a good many years, however, the stage lines prospered in the winter season, as an

advertisement in the *New York Evening Post* for December 31, 1810, makes plain:

“Since Steam Boats are no more the rage  
We’ll introduce our New Mail Stage.  
As going by steam is out of date,  
Pray take your seats ere ’tis too late.”

At first steamboats were of small value to agriculture for transporting its products since sloops under sail carried freight much more cheaply. Few farmers traveled by steamboat, because of high cost. As late in steamboating as 1825, there was no fare less than \$1.00 for any fraction of 20 miles. From New York to West Point, the cost was \$2.50; to Poughkeepsie, \$3.50; to Hudson, \$5.00; to Albany, \$7.00. But in the 1850’s, so keen had become the competition, that the fare from New York to Albany was down to \$1.00; even so, steamboats made money. A boat would carry 450 passengers, doubled the sale of tickets with the sale of berths, added as much more in freights, and out of the total subtracted \$200 or thereabouts for the expense of the trip; a clear gain of perhaps a \$1,000 as a maximum. No wonder steamboat companies multiplied, and that ruinous competition with rival companies brought about the downfall of steamboating on the Hudson, the St. Lawrence, and the Great Lakes in due course and gave railroads their chance.

The transportation of western New York farm produce down the Hudson by steam really began in the 1840’s. Cattle, sheep, and hogs bound for the city slaughter-houses and horses for the New York street-car lines began to be shipped by steamboat in enormous numbers. Travelers complained that the chorus of mooing, bleating, grunting, and neighing rendered attempts to sleep futile in boats that carried livestock. A little later, perishable fruits, vegetables, and dairy products were shipped more and more by steamboats, but grain, hay, straw, and the coarser products of the farm long continued to go down the river in canalboats. Railroad competition eventually came to take these commodities from the waterways of the State.

Thus again, through steamboating, the Hudson played a most important part in the building of the State. The rivers of the





ON THE HUDSON AT WEST POINT  
*From an aquatint by W. J. Bennett, 1831*







## WATERWAYS

world have everywhere and always been wonderful assets to the regions through which they pass—the Thames, the Rhine, the Danube, the Volga, the Ganges, the Yangtse-Kiang, the Mississippi, the Ohio, the Columbia, the Amazon, the La Plata, the Hudson—how much they have meant to the territories through which they flow. To few, considering its length, has the influence of a river been greater than that of the Hudson. It is a small stream, as great rivers go, 320 miles in length, only about one-half of which was open to navigation for large boats and for a little more than half of the year. And yet from the time Hudson gave it its name, his river has been of supreme importance in war and peace to the State and Nation.

The Hudson was not the only water to pay the State a profit from the advent of steam. The Great Lakes became more than ever important carriers of New York's products and passenger traffic. The pioneer sailor on the Great Lakes was La Salle in 1668, and from then on until the commencement of navigation of the Erie Canal much carrying was done by sail and batteaux, east and west, but with the advent of the steamboat and a little later the opening of the Erie Canal, the progress of commerce on the Great Lakes became one of the wonders of the age. This traffic came into full swing in the 1840's and steadily increased until well toward the end of the century when railroads began to take their share of the trade. Some idea of the magnitude of the commerce on the lakes and its effects on the agricultural industry of New York can be had from the following account of lake traffic as given by the *Buffalo Commercial Advertiser* in 1847.

"There were," according to the *Advertiser*, "in commission upon the lakes, 98 steamers, 35 propellers, 4 barques, 82 brigs, 495 schooners, 23 sloops and scows; total tonnage, 131,460 tons. Selecting only the prominent articles of produce arriving at Buffalo in that year, they were as follows:

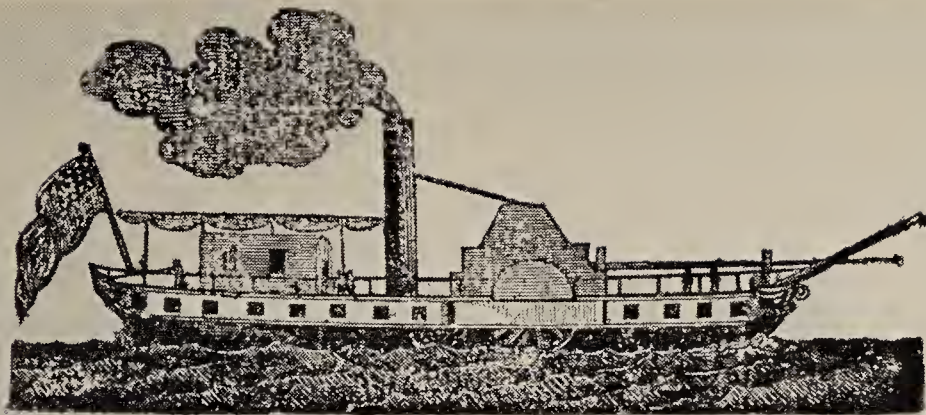
Flour, bbls.....	1,857,000	Oats, bu.....	446,000
Pork, bbls.....	42,000	Butter, kgs.....	101,584
Beef, bbls.....	38,900	Lard, lbs.....	3,436,000
Staves, ps.....	8,800,000	Cheese, bxs.....	30,840
Wheat, bu.....	6,489,100	Cheese, casks.....	6,450
Corn, bu.....	2,862,000	Lumber, M.Ft.....	17,313

“There were exported from Black Rock and Buffalo, by canal, in 1847, 710,943 tons, principally the products of field and forest, of the regions bordering upon the western lakes. The total value of imports of Buffalo from the lakes, in 1846, was ascertained and estimated to amount to nearly \$20,000,000. In the same year, there arrived at Buffalo, via the Erie Canal, the great bulk of which was shipped to the west, 153,761 tons of merchandise and other property, valued at \$23,199,665. The monied value of the business of Buffalo and Black Rock, done on the Erie Canal, and which came from and went on to the lakes, was \$40,000,000. The amount of capital invested in all descriptions of vessels upon the upper lakes in 1846 was not far from \$6,000,000. The number of men employed in lake commerce, about 6,000. The number of passengers arriving and departing from Buffalo, in 1846, was not far from 250,000.”

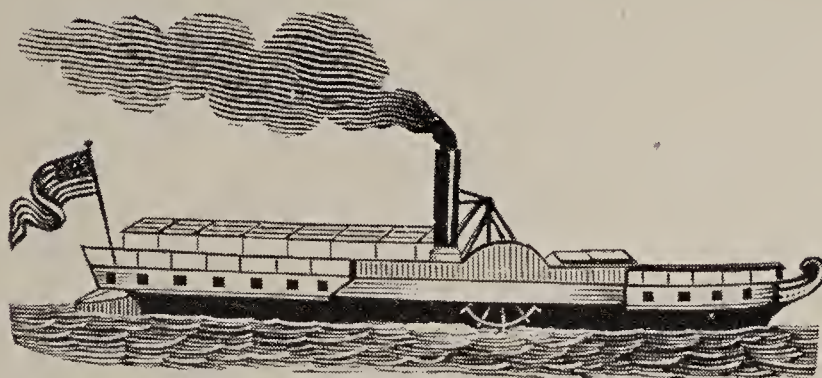
Navigation began in sailing crafts on the eight large lakes in central New York as early as 1796 with the sloop *Alexander* on Seneca Lake, a wonderful boat for the times, built at a cost of \$2,304.28, the launching of which was witnessed by several thousand people. Soon sailboats and arks were carrying farm produce and supplies on all of the inland lakes. Steamboat traffic in these waters began with the launching of the steamer *Enterprise* on Cayuga Lake, December 15, 1819. From the *Enterprise* to the burning of the *J. H. Horton* on April 15, 1925, on Cayuga Lake, passengers and trade on that body of water were served by 16 steamboats. During approximately the same period of time there are records of eight steamers on Canandaigua Lake; 11 on Keuka; 10 on Seneca; four or five on Owasco; and 10 on Skaneateles. Records are not at hand for Oneida and Chautauqua Lakes, but probably on both steamboat traffic has been greater than on any of the lakes named. The point to all of this is, so far as agriculture is concerned, the surest and cheapest transportation for 6,000 square miles of farming land in New York were the arks, sloops, and steamers of the inland lakes.

The use of coal for homes did not become general until after 1820, and it was many years after this date that coal supplanted wood to furnish power for New York steamboats. In 1825, the 13 steamboats navigating the Hudson burned 1,600 cords of wood

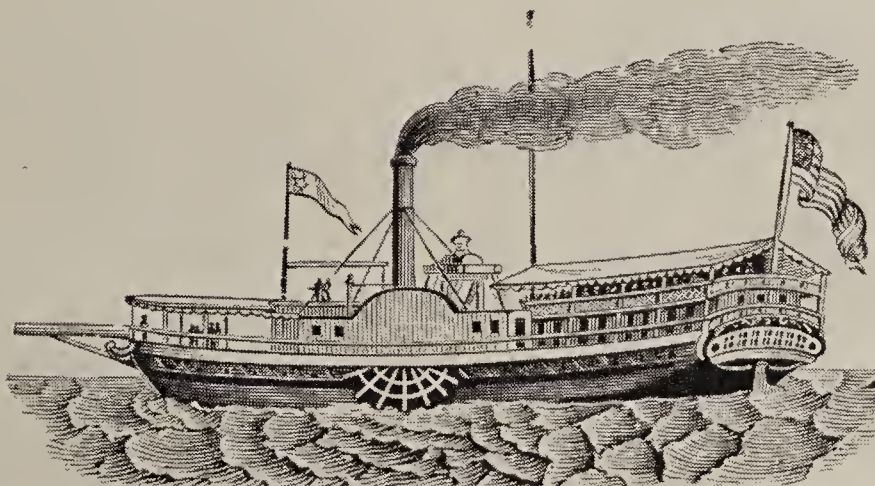




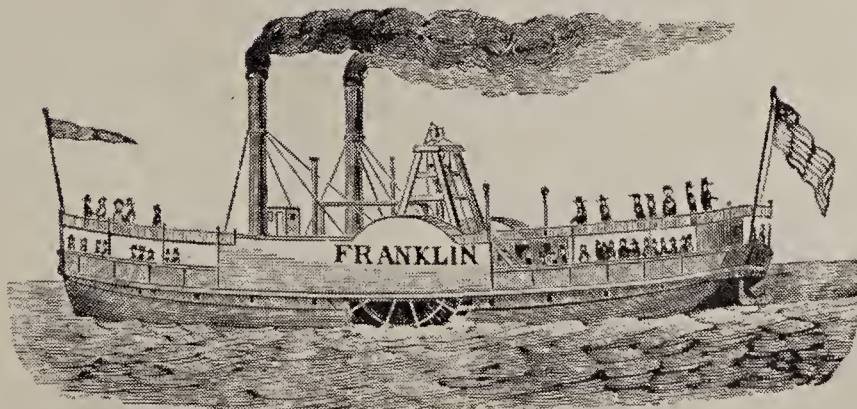
"Phoenix," built at Vergennes, Vt., in 1815. She was 146 feet long, 27 feet wide and had a speed of 8 miles per hour



"Conquest," built at Vergennes, Vt., in 1818. She was 108 feet long and 27 feet wide



"General Greene," built at Shellburne Harbor, Vt., in 1825. She was 75 feet long and 22 feet wide



"Franklin," built at St. Albans Bay in 1827. She operated between Whitehall and St. Johns and was commanded by Johaziel Sherman, great-grandfather of Vice-President James S. Sherman

## EARLY STEAMBOATS

*From an old print*





## WATERWAYS

a week, the ferryboats at New York City consumed 1,400 cords more, a total of 3,000 cords per week, or approximately 100,000 cords for the eight months the river was open. Steamers on the Sound, in the coastwise trade, and on Lake Ontario and Lake Erie also consumed great quantities of wood until coal took its place. Most of this fuel came from the forests of New York and wood cutting was one of the most profitable avocations of New York farmers. What with that used by gristmills, sawmills, the salt works at Syracuse, tanneries, steamboats, and in every country and city home, rural New York had a splendid industry in furnishing fuel.

Before leaving the subject of steamboats, cognizance should be taken of four landmarks in steam navigation in America other than the building of the *Clermont*. In 1811, Nicholas J.

Roosevelt built the steamboat *New Orleans* at Pittsburgh, and sailed down the Ohio and Mississippi to the Gulf, opening traffic for the products of northern farms and manufacturing industries in the South. A second landmark was the building of the *Ontario* in 1816 at Sackett's Harbor to open steamboat commerce with Canada. The *Walk-in-the-Water*, built in 1818, to navigate the Great Lakes from Buffalo to Chicago was a third. The South, Canada, and the West were now opened up to New York and the trade on the Great Lakes became at once an asset and a liability to New York agriculture. Markets for New York manufactured

### *Western Forwarding*

#### LINE,

#### FROM ALBANY.

**F**OR the better accommodation of Merchants, and others, the subscriber will commence running

### *A Line of Boats*

As soon as the navigation opens.—Three Boats will start west from Schenectady, three west from Utica, and three east from the same place and Geneva each week.

Large Teams are engaged to convey Goods from Geneva to any part of the western country. By this arrangement he is enabled, and will engage, to convey Goods from Albany to Geneva from 12 to 14, to Rochester from 14 to 16, to Buffalo from 16 to 18 days, and any other place in the same time proportioned to the distance.

His Boats are in complete order, and careful and experienced Agents will attend at the different places to forwarding goods in the best possible order.

HORACE MEECH.

*Geneva, March 7, 1821.*

70

articles were greatly developed, but ruinous competition in agricultural products soon offset the advantages of Great Lake navigation to agriculture. The fourth landmark was the alteration of the *Savannah*, a sailing vessel, into a steamboat, which crossed the Atlantic from Savannah, Georgia, in 1819, to Liverpool in 28 days, using sails and steam. Agricultural products which hitherto could not be transported quickly or cheaply enough to find markets in Europe from this time on could be shipped advantageously to European seaports.

The first canal built in New York State, and probably the first in the United States, was constructed by Lieutenant-Governor Colden in Orange county in 1750. It was built for the transportation of stone, but soon was being generally used for other freight as well. But the beginnings of canal building in New York dates back to the close of the Revolution. The new nation at the close of the war began to entertain magnificent projects for internal improvement, one of which was the building of canals. The rage was at its height in 1792, in which year plans were afloat for canals and locks in all of the states of the Union. In New York two great companies were formed at Albany for canal and lock navigation. One of these proposed to build a line from Troy by way of Fort Edward to Lake Champlain, and incorporated under the name of Northern Navigation Company. The second company started its canal at Schenectady and proceeded by a somewhat devious route to Seneca Lake in Ontario county, and incorporated under the name of Western Navigation Company.

There has ever been a dispute as to who first advocated the building of a canal system in New York. Probably there were several exhorters, since canals seem to have been in the mind of the whole country. But the first printed proposal for a canal system in New York seems to have come from the pen of Christopher Coles, who in 1785 published and distributed a pamphlet on the settlement of waste and unimproved land and the improvement of inland navigation between Albany and Oswego. At the same time he began to urge the Legislature to improve the waterways of the Hudson River system, and small grants were



## WATERWAYS

made for the purpose with Coles in charge of the work. Another early champion was Elkanah Watson, who, as we have seen, was the originator of State and county fairs and various other worthy projects for the new State and the new country. In 1788, and again in 1791, Watson followed the Mohawk and Wood Creek to Oneida Lake, crossed the lake to the waterways of the Finger Lakes region, studying the topography of the country with a canal in mind. He enlisted the interest of General Schuyler, then prominent in the affairs of the State, and under the name of "The Northern Sentinel" importuned the Legislature through the papers of the State. From his study of the route he was able to give distances, probable costs, a statement of obstacles, the benefits to be conferred, the value of the land through which the canal would pass with such clarity and enthusiasm that in March, 1792, a canal company was incorporated.

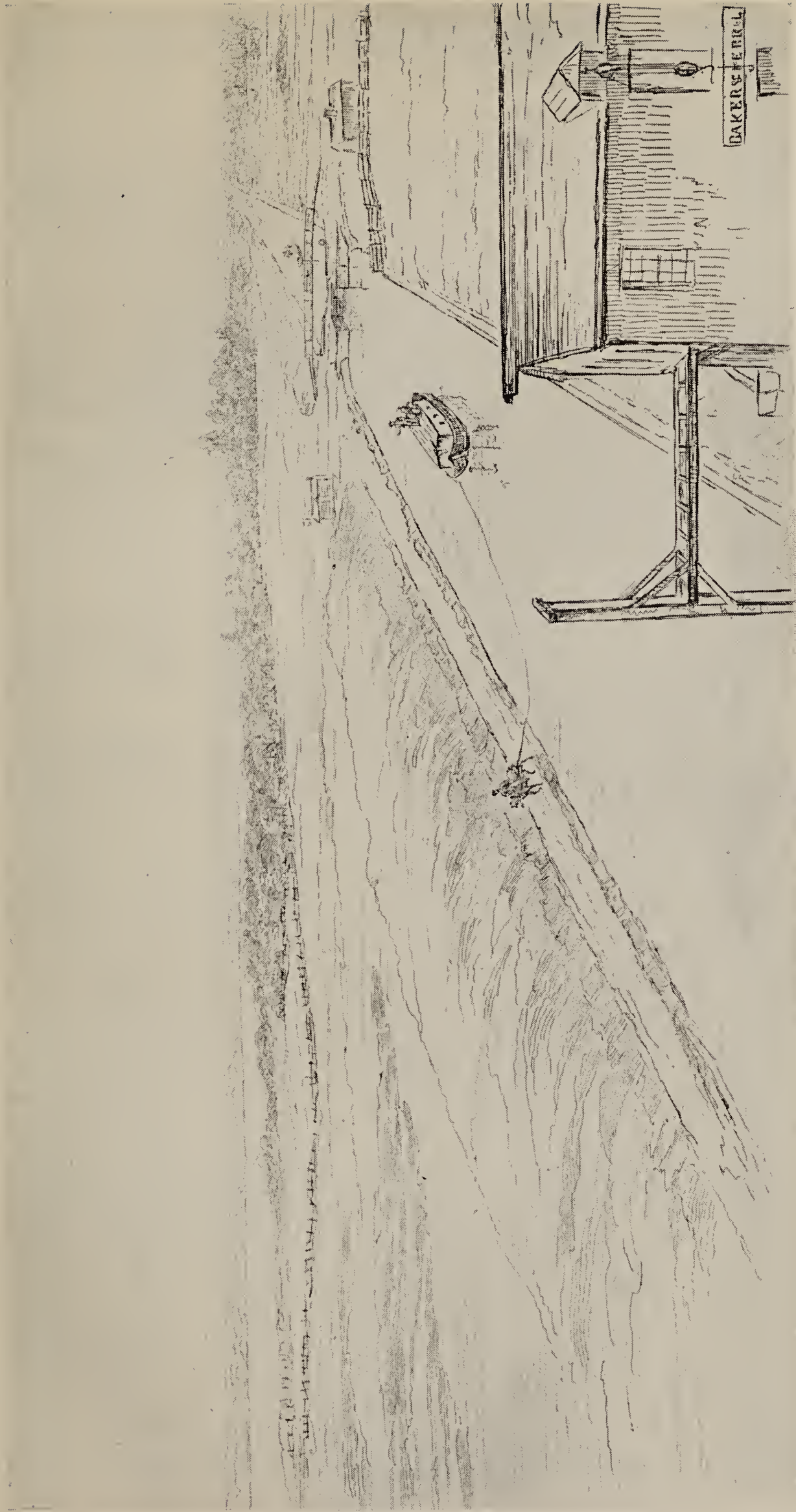
Probably Gouverneur Morris first expressed the idea of a canal from the Hudson to Lake Erie. In 1800, he suggested that Lake Erie be tapped and the canal follow the continuous slope from the lake to the highland that borders the Hudson, thence a series of locks to the river. Simeon De Witt, then Surveyor General, thought Morris impracticable, but James Geddes, a land surveyor of Onondaga county, believed that the plan, with some modifications, was a good one. Geddes persuaded Jesse Hawley of the feasibility of the project, and the latter wrote a series of papers for the *Genesee Messenger* in 1807 and 1808, under the *nom de plume* "Hercules," advocating the building of the canal. In 1808, Joshua Forman, a member of the Assembly, introduced a resolution for the survey of a canal route from the Hudson to Lake Erie. The sum of \$600 was granted for surveys and James Geddes was directed to take levels from Oneida Lake to the mouth of Salmon Creek, to ascertain whether a canal could be opened from Oswego Falls to Lake Ontario, and to make a preliminary survey around Niagara Falls. He was also directed to survey a route from Lake Erie to the waters flowing east from Seneca Lake. Geddes' report drew the attention of several prominent men in the State Legislature, among whom was DeWitt Clinton, then a member of the Senate. In 1810, a commission was appointed with DeWitt Clinton at its head to survey a route through the

center of the State. Six years were spent in making the survey and persuading the State to appropriate money. It was not until 1817 that work was actually begun on the great project. DeWitt Clinton's intelligent and arduous work in behalf of the canal brought about its building—a fact recognized at the time in the name given it, somewhat derisively, "Clinton's Ditch."

The Mohawk, at the time, was a highway of trade and commerce second only to the Hudson in the northeastern states. Down it passed most of the forest and agricultural products of central and western New York to Schenectady, and then over the turnpike to Albany. But transportation, necessarily interrupted at Schenectady, and because of the rude construction of the carriers, was exceedingly expensive. The craft most in use on the Mohawk was a broad, shallow scow, 50 feet in length, which had to be pushed upstream by man-power and steered up and downstream by a long sweep oar. When the water was high, this scow, called the Schenectady boat, would carry 10 tons of forest or farm produce down the river; when low water prevailed, the load was three tons. The first serious hindrance in the navigation of the Mohawk, west of Utica, was at Little Falls where the river poured over a high ledge, to pass which a canal with eight locks was necessary. Westward, beyond Little Falls, boats up the Mohawk stopped at Utica where the freight was sorted and put in smaller craft, thence to Rome, then a canal to Wood Creek, thence to Oneida Lake, through to the Onondaga River, down to the Seneca, by means of which central and western New York were tapped for their products.

It is worth while to go a little more into details. The Inland Lock Navigation Company, which, as we have seen, was chartered in 1792 for the purpose of building a canal from Albany to Oswego, dragged on without accomplishing much until 1812, when New York attempted to secure an appropriation from the Federal government of \$5,000,000 on the credit of the State. But the war came on, and all thought of canal building was given up, and the matter rested until 1815 when Clinton, as chairman of the canal commission, addressed a pamphlet to the Legislature, setting forth the great advantages New York would derive by a canal from the Hudson to Lake Erie. He enlisted men in influence





THE GREAT ERIE CANAL  
From an etching by Basil Hall, 1829





## WATERWAYS

who had hitherto been lukewarm. Meetings were held in every town and hamlet along the proposed route from Albany to Buffalo. In April, 1816, the Legislature appropriated \$20,000 to complete the survey of the route from Albany to Buffalo, and from the Hudson to Lake Champlain. Clinton at once energetically began work in surveying and making profiles. In 1817, the commissioners were authorized to begin construction on the middle section of the canal joining the Mohawk and the Seneca rivers and on the northern section to join the Hudson with Lake Champlain. The Legislature created a special fund, the interest and principal of which were to be paid by duties imposed on salt transported. Taxes were levied ranging from 50 cents to \$1.00 on persons who traveled on the canal. Lotteries were to supply another part of the fund; tolls were to be taken when the canal was built; there were duties on sales at auction; and convicts from the State prisons were drafted to help in the work.

On July 4, 1817, the first ground was broken at Rome, and the greatest piece of engineering up to that time attempted in the United States was begun. It required eight years to complete the building of the canal. The cost was \$8,000,000, but money was not the only obstacle. "The big ditch" was a constant subject of ridicule and means of raising money to build it met with opposition at every turn. Success was due to the energy and influence of DeWitt Clinton. The canal was opened to the public in October, 1825, with the grandest jubilee the New World had ever seen. The celebration began at Buffalo, where, after speeches, balls, parties, dinners, and illuminations, a fleet of boats passed eastward to Albany in a continuous ovation every mile of the way. The news that the fleet had started was carried to New York by a line of cannons placed along the canal to Albany and down the Hudson to New York. When the last cannon was fired at the Battery there was a return cannonade from the Battery to Buffalo to signify that the news had been received in New York. So was inaugurated the Erie Canal which was to revolutionize the agriculture and the commerce of the State and the northern states of the Union. New York City was now able to eclipse its rivals, Boston and Philadelphia, and the State to begin a new era of prosperity in every phase of industry.

## A HISTORY OF AGRICULTURE

The canal was at once a success, even before it was finished the tolls began to exceed the interest charges. In 1826, the first year of its operation, it was no uncommon sight to see 50 boats starting westward in one day from Albany. More than 19,000 boats and rafts passed through Troy on the Erie and Champlain canals during this first year. Agricultural products, lumber, staves, shingles, and potash were the chief commodities that moved eastward; although hides, furs, whiskey, flour, salt, and furniture, while less in quantity, were of almost equal monetary value. The towns along the canal grew enormously. Rochester, almost overnight, became a great flouring center. Syracuse began to supply almost the whole country with salt. A hundred smaller towns sprang into existence and became prosperous through some natural product which the region supplied or some manufactured commodity which water power enabled their populations to produce. Canal packetboats carried passengers east and west in ever increasing numbers. Boats equipped with a pleasant parlor, dining room, and sleeping rooms with berths, pianos, tables, books, and games made the journey a pleasant experience which appealed to all so greatly that only those who were in haste traveled by the faster stage-coach.

Canalboats had of necessity to be towed up and down the Hudson, and towing soon became a great and profitable business. The price paid by a boat for a tow up or down the river from Albany to New York ranged from \$5 to \$15, depending upon competition. Generally a "tow" was made up of from 60 to 80 boats, but Captain Harvey Temple once came up the river, a broom on his flag staff, with a record tow of 108 canalboats behind his steamer, *Connecticut*. For most part the steamers that pulled these immense tows up and down the river were passenger boats cut down to their lower works and otherwise adapted to the business of a tugboat. Some of the old boats were rebuilt for carrying livestock which needed faster transportation than the canaler could furnish. It required a week or thereabouts for a tug with a long line of canalboats to make the trip up or down the river—too long for livestock or perishable farm produce.

Illustrating the growth of cities and towns along the canal, examples are Rochester, Buffalo, and Syracuse. Between the years



## WATERWAYS

1820 and 1830, Rochester increased by 421 per cent over its population at the beginning of the period. Second in rate of increase, Buffalo gained 314 per cent. Syracuse was third with 282 per cent increase, while Utica showed an increase during that period of 242 per cent. Another group of figures shows that in 1816 there were but 331 people where Rochester now stands, but in 1840 it had a population of nearly 25,000, had become the shipping point for the wheat of western New York, and produced more flour than any other city in the world. Wheat in western New York, after the construction of the canal, was worth four times as much as it had been previously selling for. The canal brought prosperity to every farm, hamlet, and city to which it and its feeders gave access.

Men who first came to western New York found that the Susquehanna and not the Mohawk was the best means of getting farm produce to the market. In 1800, a bushel of wheat was worth 100 cents at Bath, on the Susquehanna, and only 60 cents at Geneva, where it had to find market by way of the Mohawk. "In November, 1804," said the *Albany Gazette* of that time, "a wagon load of wheat was brought by four yoke of oxen from Bloomfield, Ontario county, to Albany, a distance of 230 miles. The wheat was purchased at Bloomfield for 62½ cents per bushel and sold at Albany for \$2.15." The journey required, going and returning, 20 days even when the terrible roads of the time were at their best. But in time the canal reduced travel from Buffalo to New York from 20 days to 10, and the cost of moving a ton of freight fell from \$100 to \$5. All the farm products of western New York at once poured eastward instead of southward. Hitherto, New England had supplied New York with potatoes at from 75 cents to \$1.00 a bushel. Central New York could not produce and ship at twice that price with profit to farmers, but now "Chenangoes," as potatoes from central New York were called, usurped the market. Western New York flour could be shipped via the canal and the Atlantic to southern markets in the West Indies at less than \$1.50 a barrel for freight. The abandonment of New England farms began with the completion of the Erie Canal. New York, hitherto second in rank to Pennsylvania in agricultural products, soon took first rank, and held that place

until after the Civil War. It was the Erie Canal, all agree, that made New York the Empire State and New York City the metropolis of the Western Hemisphere.

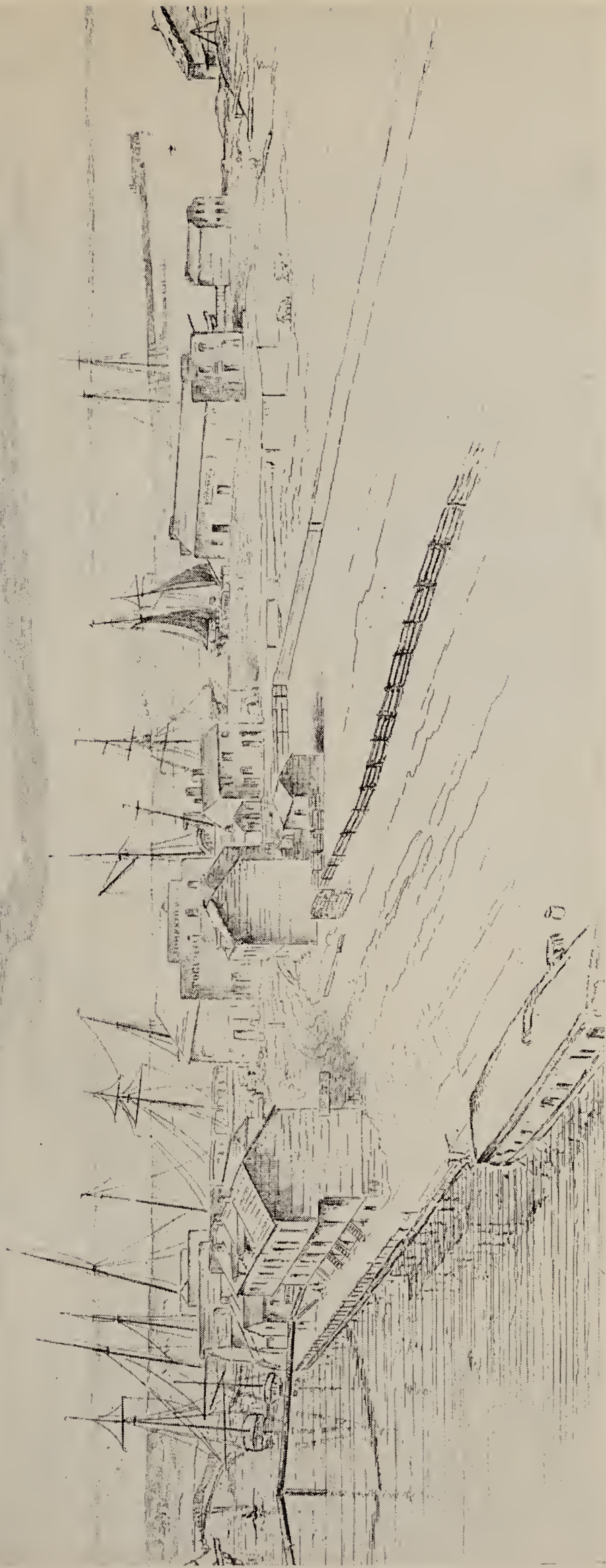
Tolls came down rapidly. In 1832, the average toll of important canals in New York was two cents per ton per mile, plus the cost of movement which was one cent, making a total of three cents per ton per mile. Twenty-five years later, the average cost of tolls on the Erie Canal plus carriage was one cent per ton per mile. The average cost of tolls and carriage in 1906 from Buffalo to New York, a distance of about 500 miles, was 2.8 mills per ton per mile.

Other figures illustrating the importance of the canal to agriculture and industry in the State are taken from *The Northern Traveler*, published in 1834:

“The whole quantity of down freight upon which toll is charged by weight, that was conveyed on the New York canals to Albany in 1833, amounted to one hundred and fifty-two thousand nine hundred and thirty-five tons, at 2,000 lbs. per ton. Arrived, 734,133 barrels of flour, 22,922 barrels of ashes, 13,489 barrels of provisions, 19,908 barrels of whiskey, 873 hhds. of whiskey, 17,116 bushels of salt, 298,504 bushels of wheat, 122,944 bushels of coarse grain, 257,252 bushels of barley, 2,187 boxes of glass. And also the following upon which toll is not charged by the ton: 20,960 cords wood, 74,350 feet timber, 55,338,547 feet lumber, 74,350 M shingles, and 68,321 tons of merchandise, furniture, and sundries, sent up the canal from Albany. The whole amount of toll received by the Collector at Albany, is \$323,689.88, making an increase of \$87,053.56 over the receipts of last year. The number of boats arrived and cleared was 16,834.”

As first constructed, the Erie Canal was 363 miles long, 42 feet wide at the top, 28 feet wide at the bottom and four feet deep. An enlargement of the canal was ordered in 1835 and completed in 1842, at a cost of approximately \$23,000,000. The new canal was 70 feet wide at the surface, 52½ feet at the bottom, and had a depth of seven feet. A further enlargement was ordered in 1884, at which time the locks were lengthened. In 1903, the





THE ERIE CANAL AT BUFFALO  
*From an etching by Basil Hall, 1829*





## WATERWAYS

State authorized an expenditure of \$140,000,000 to enlarge again and the Erie became the Barge Canal. The Barge Canal is 200 feet wide and 12 feet deep. The giant locks are operated by electricity and can be opened or closed in a half minute. Boats on the Erie were drawn by horses and mules; on the Barge Canal they are motor driven and like railroad trains are guided by red and green signal lights. The Barge Canal, however, does not begin to play the part in New York's commerce of the old Erie, and in the public mind there is now the question as to whether the new canal, with its high cost of construction and maintenance, is an asset or a liability.

Not only the cities on the Erie largely owe their existence to business that the canal brought—Schenectady, Amsterdam, Utica, Rome, Syracuse, and Rochester—which early brought them in communication with the rest of the world, but the developing power of the canal system in New York was manifested in a score or more smaller cities and towns, most of them with "port" as a suffix. Where else in inland regions can be found such names as Lockport, Gasport, Middleport, Brockport, Spencerport, Waynesport, Weedsport, Centerport? Still others have "port" in front of the name as Port Gibson, Port Byron; and then several others with "basin" or "harbor" to bespeak a touch with navigation, as Shelby Basin, Adams Basin, Eagle Harbor. Without the Erie Canal many of these towns would never have come into existence or would have been but straggling hamlets on dusty crossroads.

The Erie having been completed and put in operation successfully, a craze for constructing canals and extending navigation in the State began and lasted until railroads came to furnish cheaper and quicker transportation.

The Champlain Canal, running from Cohoes to Lake Champlain, was begun in 1818 and finished in 1823 at a cost of \$875,000. It is 64 miles long, with a feeder of seven miles to Glens Falls, with slack water navigation five miles farther up the Hudson. The canal passed through some 20-odd towns and hamlets and gave an outlet for the agricultural and forest products of the Champlain Valley in both Vermont and New York. Much commerce with Canada was carried on through the Champlain

Canal by reason of which towns and agricultural communities prospered in furnishing supplies to canalboats.

The Chenango Canal was a very important connecting waterway between the Erie Canal at Utica and the Susquehanna river at Binghamton. It was authorized by the Legislature in 1833 and was finished in 1837 at a cost of nearly two million dollars. It was 97 miles long with 14 miles of feeders, none of which were navigable. The Chenango Canal passed over high land 706 feet above sea level and required 76 locks in ascent and 38 locks in descent. This canal brought the farming lands of Madison, Chenango, and Broome counties in close proximity to eastern markets. Wool, dairy products, livestock, and more particularly potatoes from Chenango county and hops from Madison county were cheaply freighted.

A third important subsidiary ran from Rome up the valley of the Mohawk to Boonville and thence descended to Black River at a point below the high falls. From the latter point, Black River was navigable 42½ miles to Carthage. The canal was a little less than 37 miles in length. Feeders and reservoirs made the Black River Canal an important source of water for the Erie. Its building was authorized in 1836, and the work was completed in 1839. Great quantities of rich forest products, grain, potatoes, cheese, and butter went to market on this waterway.

The Oneida Lake Canal connected the Erie at Higginsville with Wood Creek and by slack water on the creek with Oneida Lake, a distance of six miles and a descent of 56 feet. It was built by the Oneida Lake Company between 1832 and 1835 and was purchased by the State in 1841. The Oneida Lake Canal was an important link in the waterway system of the State, since it afforded navigation from the Erie to Oneida Lake, and by the Oneida outlet to the Oswego Canal and river. Before the Erie was built, the Oneida Lake route was the great thoroughfare for water transportation of goods westward, and many of the settlers in western New York came through these waters.

The Oswego Canal ran from Syracuse to Oswego, a distance of 38 miles and 19 miles of slack water navigation in the Oswego and Seneca rivers. Building was authorized in 1824 and was completed in 1828 at a cost of more than a half million dollars,



## WATERWAYS

not counting extensive improvements that had to be made on the Oswego and Seneca rivers. The power furnished by the Oswego river for flouring mills and the transportation of the grain of the prosperous farming region of central New York and the Finger Lakes quickly made Oswego a great grain market to take the flour and grain trade, as did Rochester through the building of the Erie, from the old grain markets of Catskill, Albany, and Troy.

Cayuga and Seneca Lakes were connected with the Erie system with a canal running from Cayuga Lake at Cayuga to Montezuma and from Cayuga Lake to Seneca Lake at Geneva. About half of the canal was formed by slack water in the Seneca River. This improvement was started by a private company as early as 1813. In 1825 it was bought by the State and work on this connecting link was begun in 1826 and finished in 1828; important in the Erie system since it enabled farmers to ship agricultural produce from the rich farming lands about Cayuga and Seneca Lakes.

A feeder to the Cayuga and Seneca was the Crooked Lake Canal which connected Crooked Lake, now Keuka Lake, at Penn Yan, with Seneca Lake at Dresden. It was authorized by an act of the Legislature in 1829 and the work was finished in 1833. Although but eight miles in length, it had a descent from Crooked Lake to Seneca Lake of 269 feet which required 27 locks.

The Chemung Canal and feeder connected Seneca Lake at Watkins with the Chemung River at Elmira. Its building was authorized in 1829, and work was completed in 1833 at a cost of \$344,000. There were 53 locks in this short canal and its feeders with lockages of 516 feet. Soon after its completion, a railroad connected it with the bituminous coal region of Tioga county, Pennsylvania, and for many years a heavy tonnage of coal passed through it to supply the towns and cities on the Erie and its several feeders. For many years previous to the building of this canal as much as 10,000,000 feet of pine lumber had annually been floated down the Chemung and Susquehanna to the south as had nearly all surplus farm crops; now a part of these rich products went to the northern and eastern markets.

The Genesee Valley Canal ran from Rochester up the Genesee Valley to Olean on the Allegany River, a distance of 120 miles.

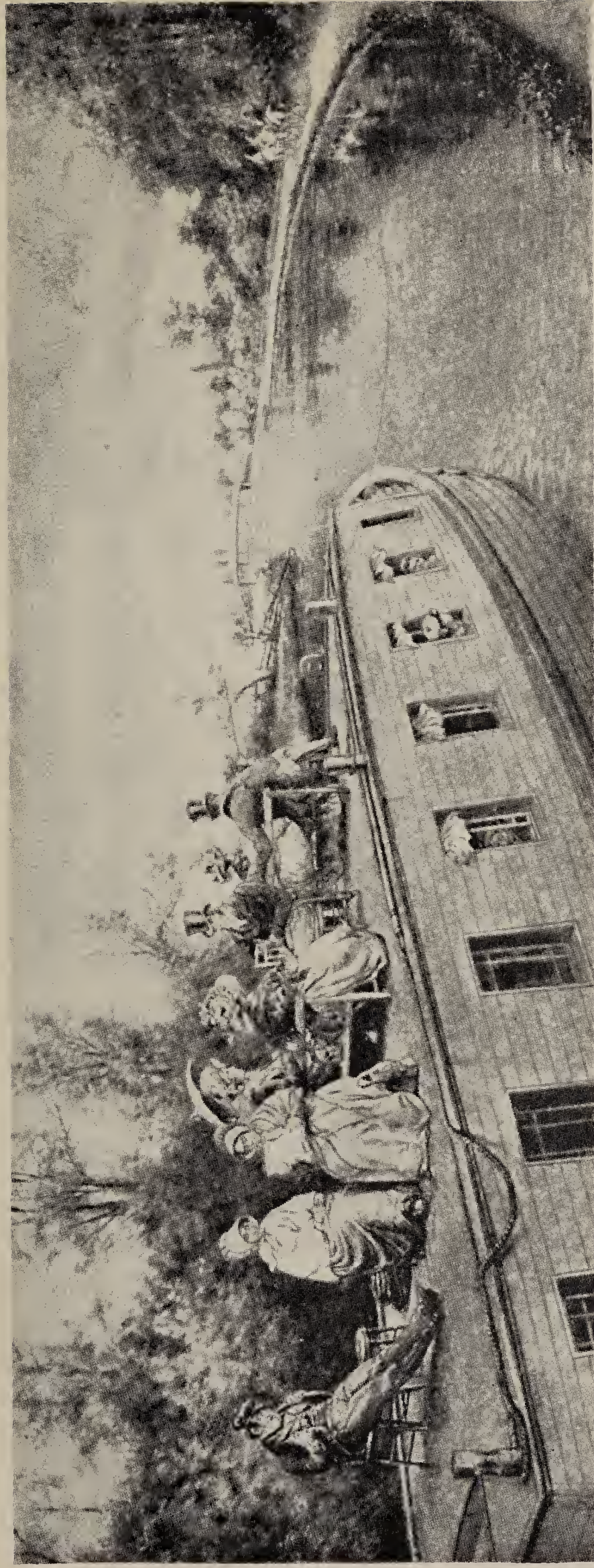
Its building required a very difficult feat of engineering, since it had to pass over a height of land 978 feet above Rochester and 86 feet above the Allegany River at Olean. The ascent required 97 locks and the descent nine. The canal was authorized by the Legislature in 1836. Work began the same year, but was not finished until 1840. From the date of its completion until 1877 there was continuous construction work on several feeders emptying into the main canal. The construction of the Genesee Valley and its feeders gave a great impulse to the agriculture of Wyoming, Allegany, and Cattaraugus counties, the last two of which had suffered by the building of the Erie which had detracted travel from the great east and west turnpike which traversed the territory. The canal connecting the Erie and the Allegany river furnished transportation north and south for farm produce and the rich products of the pine forests in the three counties.

The Delaware and Hudson Canal ran from Rondout on the Hudson River to Honesdale, Pennsylvania. It was owned by a private company and was but 16 miles long. This was the principal route before railroads were built by which coal was brought from the Lackawanna coal region to supply towns and cities on the Hudson. But, of more importance to agriculture, it passed through the rich farming and dairy lands of Orange county and thereby greatly benefited the farmers of that region.

These are but the most important of the many canals built during the two or three decades preceding the construction of railroads on a large scale. Perhaps as many more in number, but not nearly of so great importance or length in mileage, were constructed by companies organized to extend navigation in the State.

This scant and fragmentary sketch of the waterways of New York falls far short of doing the subject justice. It is out of the author's field to give greater details, and especially to make plain the importance of the canals and rivers with their improvements for water power. Innumerable mills and factories were supplied with power by falls in the improved waterways of the State. An interesting chapter could be written on water improvements projected but never finished. Company after company was organized to build canals from hither to yon. Stock was sold, but too often





A PACKET BOAT ON THE ERIE CANAL

*From a painting by C. Klackner*





the work was never completed or turned out to be a failure after completion.

Agriculture was greatly helped by canals in other ways than by lowering freight rates. Many farmers living shorter or greater distances from a waterway found opportunity to make money, to travel, and to visit the great cities. They invested in boats and usually as owners and captains spent their summers on the canal; their winters on the farm. They carried grain and all the products of farm and forest to New York and came back loaded with the wares of eastern or foreign manufacturers. Moreover, the canal required droves of horses and mules, foaled and fed on the farms of the State. Every community through which a canal passed prospered by reason of supplies, man, beast, and boat required. The "canaler" was domiciled on the canalboat from the opening to the close of navigation and rural bred people relieved the dull monotony of farm and small town life by the social amenities that the canal and the ports it touched gave.

Canals were not all to the good in rural New York. For many years much of the western emigration was through the southern counties to the Allegany River, then down to Pittsburgh. The towns and farms along the southern turnpikes thrived mightily on the coming and going of emigrants, drovers, freighters, and stage-coach passengers. The Erie diverted this traffic to the great detriment of all this part of the State. There came at this time a series of cold, untoward seasons, and along with the loss of travel and transportation and the bad seasons a financial crisis, so that the three calamities coming together not only brought settlement to a standstill but caused many farmers to leave the country. Allegany and Cattaraugus counties suffered most and almost reverted to the primitive wilderness so many were the abandoned farms.

Bath, Williamson's castle in the air, was the metropolis of western New York before the building of the Erie. Williamson, energetic manager of the Pulteney Estate, planned a town to compete with the Atlantic seaports. It was situated on the Cohocton, a branch of the Susquehanna, and had direct water communication with Harrisburg, Philadelphia, and Baltimore. The Erie quickly took the commerce of the Genesee country from the Susquehanna, Bath stood still, and Williamson's dream faded.

Arkport, on the Canisteo, is another example. Founded in 1797, it soon became one of the liveliest towns in the region as a shipping port for farm produce down the Susquehanna to Baltimore. Wheat, corn, butter, cheese, and cattle were sent in arks down the rivers to southern cities. As many as twenty arks went down the Susquehanna in a season and after discharging their cargoes were broken up for lumber. In 1804, General William Wadsworth took two ark loads of oxen to Baltimore over this route. When the Erie was built the tide of travel was quickly shifted to the new waterway and Arkport sank into insignificance.

Traffic on the Susquehanna had a fatal inconvenience which helped to turn favor to canals. Arks and boats would float down the river guided and propelled by poles and oars, but they could not be brought upstream. They must be sold at their destinations for lumber, and their crews must return as best they could by laborious and circuitous land routes.

Far to the east of the State, Greene county also suffered from the building of the Erie. Before the canal was built, Catskill, the county seat, commanded much of the agricultural trade of the State west to Lake Erie and south to Pennsylvania, by reason of being a turnpike center. In the first few years of the nineteenth century, Catskill was ranked first or second among the cities of the State as a wheat and flour market. The Erie Canal quickly reduced its commerce to home trade.

The building of the Erie, in fact, was a permanent blow to all the towns and farming communities on the turnpikes of the State which were distant from the canal. Otsego county, in 1832, had a population of 52,370, but with the building of the canal it ceased to grow and for several decades there were actually fewer people in the county than in 1832. However, nature had decreed that the great route of transportation in New York State was to be that which for centuries the Iroquois had followed, now the Erie, later the New York Central, up the Hudson, along the Mohawk, and westward on a water-level route. The Iroquois had rightly named Albany "the eastern door" and Buffalo "the western door" of the region occupied by the six great families of their nation.



## CHAPTER XII

### RAILWAYS

**T**HE first railroad company incorporated in New York State, or for that matter in America, was the Mohawk and Hudson, which was given a charter by the State Legislature in 1826. Work did not begin on the road, however, until 1830, and the tracks were not ready for engine and train until August 9, 1831, when the tiny DeWitt Clinton, drawing three coaches, made the trip from Albany to Schenectady. Nearly the whole population of the region lined the right of way of the new railroad. It was indeed a memorable day—dramatic could the sightseers but have known it—for the population of the whole continent. There are many accounts of the exciting run told by onlookers and by those who were on the train itself. Children screamed in terror as the iron horse came in sight spouting sparks of fire from its tall stack; horses reared, plunged, and ran away; the wooden coaches behind the engine were in danger of catching fire; clothing and parasols were set on fire; and, all in all, this beginning of a new era in transportation, so pregnant with possibilities for agriculture, industry, and commerce, made its entrance into human activities in most impressive form.

The Mohawk and Hudson had at first a double track, but later one track was found to be sufficient. The rails were made of scantling, four inches square, laid on top of wide-spaced ties. The scantling were reinforced on top by strips of iron a half inch thick and two inches wide, spiked down. These rails were the models for all railroads for some years to come, cheap but dangerous since the strips sometimes came loose, in which event they not infrequently rammed through the bottom of cars to the injury or death of passengers. The cost of the double track road is given as \$40,000 a mile. The little engine weighed four tons. The first train consisted of the engine and three coaches, carrying

15 passengers. The cars were remodeled turnpike coaches, with seats inside and out. The road was between 16 and 17 miles long and in its course had two great hills to surmount at each end, the summit being nearly a dead level approaching the two ends. Up these hills, the trains for the day were drawn, according to some accounts, by horses. But either at the beginning or soon after the trains were pulled up and lowered down the inclined planes of 120 perpendicular feet by a stationary steam engine at each end. Tickets for the train were sold in stores and shops.

The Mohawk and Hudson came into existence not because there was great necessity for rail transportation between the two terminals, since there was already a canal, but as a time saver to supplement the waterway. The canal was round-about in course, and in it were several locks which took toll in time as well as in cash. The railroad did not parallel the canal. Politicians and canal men would not permit that. So it was with all of the early railways in the State—they were feeders or tangent lines to the canals, and not for many years were they built on parallel courses. The Mohawk and Hudson was the beginning of the present New York Central system. The line was built from Schenectady to Utica in 1836, and from the latter place to Syracuse at about the same time. Eastern roads were now joined to the extensive system built in western New York before there were connections with the east. Some 10 or 12 years later the several roads which followed the "water-level" route from the Atlantic to the Great Lakes were joined in the New York Central Railroad Company, and New York ceased to have a hinterland.

So, too, the first railroad in western New York was built to save distance on the canal. The old Erie wound in and out from Rochester to Buffalo over a course of 85 miles, with several locks at Lockport and still others at one place and another. A railroad 70 miles in length could be built to connect the two cities. The Rochester and Tonawanda was incorporated in 1836 and completed in 1837 to shorten the east and west routes through New York. It had no connection with the outside railroad world. There were other important cities in western New York in need of rail connection, to shorten or supplement traffic on the canal, to supply which the Auburn and Rochester from Auburn to





THE DOUGHTY LITTLE DEWITT CLINTON ENGINE AND TRAIN  
*Courtesy of the New York Central Lines*





## RAILWAYS

Rochester via Geneva and Canandaigua was completed in 1840; another from Batavia to Attica, in 1843; Attica to Buffalo, in 1844; Niagara Falls to Lewiston, in 1854; Rochester to Avon, in 1854; and the New York and Erie, opened to Dunkirk in 1851. Western New York now had a fairly complete rail system.

Agriculture in the Hudson River Valley had to wait much longer for service from railroads than central and western New York. The New York and Harlem was incorporated as early as 1831, but it did not reach White Plains until 1844, and headed for Albany, it did not reach its destination until in 1851, but was built at the time only as far as Chatham, 25 miles east of Albany. The Hudson River road from New York to Albany was even later in receiving a charter, probably because the bold and rugged eastern bank of the Hudson involved serious difficulties for railroad engineers. Moreover, both the New York and Harlem and the Hudson River roads had to be built in opposition to the powerful steamboat companies of the Hudson River. The direct line from New York to Albany up the Hudson was finished to Poughkeepsie in 1849 and reached Albany two years later, a few months before the Harlem road entered that city from Chatham.

In the early thirties, a road was incorporated to pass through the southern tier of counties to give that vast region some of the advantages which had been passed over to the northern counties when the Erie Canal had been built. But there was little money in these counties and outside capital hesitated. It was not until the late forties that work on what is now the Erie, passing through the southern tier, was begun, and not until 1851 that the road was completed from New York to Dunkirk on Lake Erie, thus making the most direct route from salt water to the fresh water of the Great Lakes. A most interesting chapter could be written about the Erie—books have been written about it—since at one time and another it played a most important part in freight reductions in the east and west transportation of the whole country and it had more ups and downs in the railroad strategy of New York than any other road.

The building of the Erie was a triumphant piece of engineering skill, since there were prodigious hindrances in the way of rivers to cross and mountains to avoid or pass over. The road also had

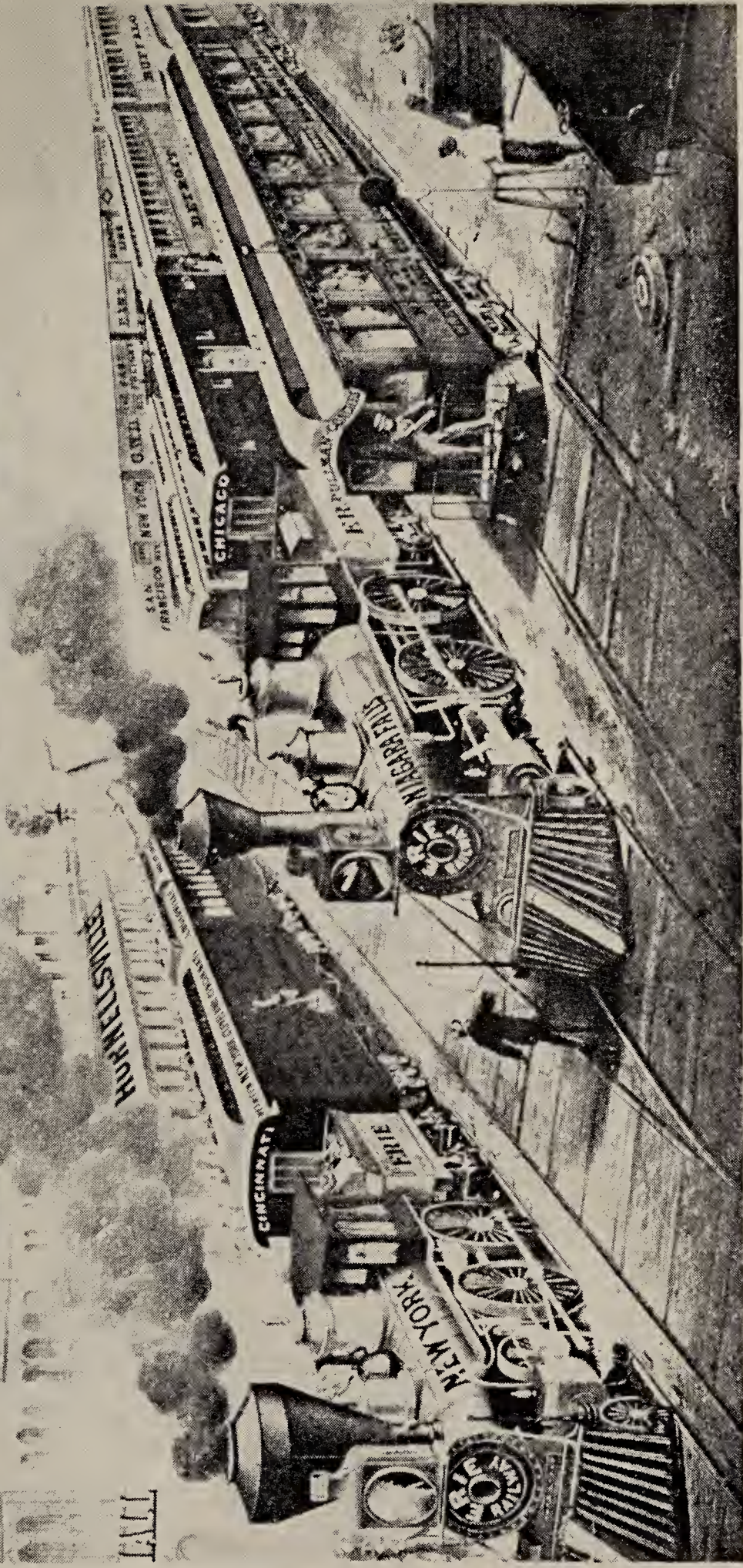
the ill will of a good many politicians in the State and the condemnation of those who said the natural obstacles could not be overcome. It turned out for the time being a great success as a connecting link between New York and Lake Erie. It was both an asset and a liability for the agriculture of the State. The farmers in the southern tier of counties were now able to obtain quick and relatively cheap transportation to market, but on the other hand it brought the mighty granaries and herds of Ohio and Michigan by three days transit to New York City, the market metropolis of the Union. The trade and travel brought ready cash to the cities and the towns on the route, and thus promoted local markets for the farmer which offset in part the competition of the West.

The extensive coniferous and hardwood lands in the southern tier of counties were tapped by the Erie and their rich forest products soon found a more profitable market than men had ever dreamed possible. Hitherto forest and agricultural products in this vast region had been transported in quantity only on the Allegany and Susquehanna rivers; now the Erie Railroad gave new life to a wide strip of country clear across the southern part of the State. Hitherto, farmers in this region had been unable to compete agriculturally with the northern counties because of poor transportation, although the somewhat mountainous land and the somewhat less fertile soil were also handicaps. The Erie gave not only better means of conveyance but greatly stimulated the growth of manufacturing towns. Binghamton, Elmira, Corning, Hornell, Olean, Salamanca, and Jamestown are largely the offspring of the Erie, and made very good markets for farmers who before the coming of rails had almost none. The upper reaches of the Genesee, in particular, were given a new start. This region had been settled in 1804, but the land was never well developed until the Erie came to make it the center of a remarkably profitable dairy industry.

In 1853, the nine little roads between Albany and Buffalo were consolidated into the New York Central. It then became possible for a traveler to go without change of cars from New York or Boston to Rensselaer, where a ferryboat carried him to Albany. He could then take a New York Central train which would carry



# PURCHASE TICKETS AT THE RAILWAY



ERIE RAILROAD AT HORNELLSVILLE, 1874

Currier & Ives Print







him to Buffalo. There he must take the Buffalo and State Line Railroad to the New York-Pennsylvania line, where still another change must be made to the Erie and Northeast Railroad, which would land him in Erie. Proceeding westward, he must take another train to Cleveland, where a scow propelled by oars took him over the Cuyahoga River after which he was well on his way to Chicago. A cause of some of these changes was that the several roads used different gauges. On the road from Buffalo to the New York State line, the gauge was 4 feet, 10 inches; from the State line to Erie, 6 feet; from Erie to the Ohio line, 4 feet, 10 inches. After the New York roads became consolidated into the New York Central, the road from the State line to Erie was changed to agree with the eastern line gauge, but the people of Erie resisted any change on the road westward, since to make it would mean that they would lose the benefits the city derived from the transfer of passengers and the reshipment of freight. After a miniature war, in which there were several riots, many arrests, and a number of commitments to jail, the change of gauge from Erie westward was made, to the great advantage of shipping. The troubles of railroading in New York in this period before the Civil War are well illustrated by this example of what was taking place on the New York Central at the time.

Until a half century ago railroading was much hindered by clock confusion. Nearly every railroad had its own time and there were 58 kinds of time in the schedule tables of the country and as many more by the clocks of houses and streets. Variations in the hours and minutes of telegraphs and Atlantic cables added to the confusion. Time had to be fixed in spite of the sun which kept the clocks of the country going. In the autumn of 1883, the United States and Canada, ignoring other nations which clung to their local clocks, adopted a standard time whereby all communities within bands based on meridians of longitude had the same time, each division marking a transition of one hour. The adoption of standard time was one of the greatest advances made by railroading in its history and in methods of time reckoning for the whole continent as well.

To follow the development of early railways throughout the State would take us too far afield and would cover ground already

many times traversed. Suffice it to say that other parts of the State than the route from Albany to Buffalo were not long content to be without the iron horse. The little DeWitt Clinton in 1832 sounded the death knell of the packet boat and the stage-coach. The eastern, northern, and southern parts of the State soon had their roads. Cross-state and up-and-down-state tracks by the beginning of the Civil War supplied every important village and every prosperous farming community in New York with train service of one kind or another. Soon master minds, those of Erastus Corning, Dean Richmond, Cornelius Vanderbilt, Daniel Drew, James Fisk, and J. Gould, took the puny enterprises of the thirties, forties, and fifties in hand, united them, established trunk lines, and railroading such as we now know it had its birth.

The total receipts in 1843 of the seven roads connecting Albany with the chief cities of the State were \$935,000, of which \$590,000 was derived from the passenger trade and less than \$190,000 from freight. The canal was still the avenue through which farm goods and merchandise were carried in New York State. The railroad carried passengers, most of whom were immigrants. In this year, 95,000 through passengers were carried from Albany to Buffalo, whence most of them took the boat for the far west. The streets of Buffalo then and for many years to follow were choked with wagons loaded with farming implements, household goods, and furniture of immigrants on their way to the great west. About 1,200 people, it was said, left Buffalo every day by train or boat for Chicago and points farther west.

Railroading in New York did not really come into its own until the fifties and sixties. A writer of the time who wanted more roads complains: "The trains are crowded with freight and passengers. Rolling stock cannot be procured in sufficient quantities; the crossings are clogged up and the freight houses crowded to their utmost capacity. Passengers are packed into miserable little stations like herrings in a cask."

The trials of commuters in modern cities are mild in comparison with those who would travel by train in many parts of New York in the sixties and seventies. At the shout of "Train!" a crowd rushed to the side of the tracks and before it had fairly stopped swarmed up the steps. One judges that the courtesies and



THE REX BURTON CO.



... ..

卷之六

海國圖志卷之六十五

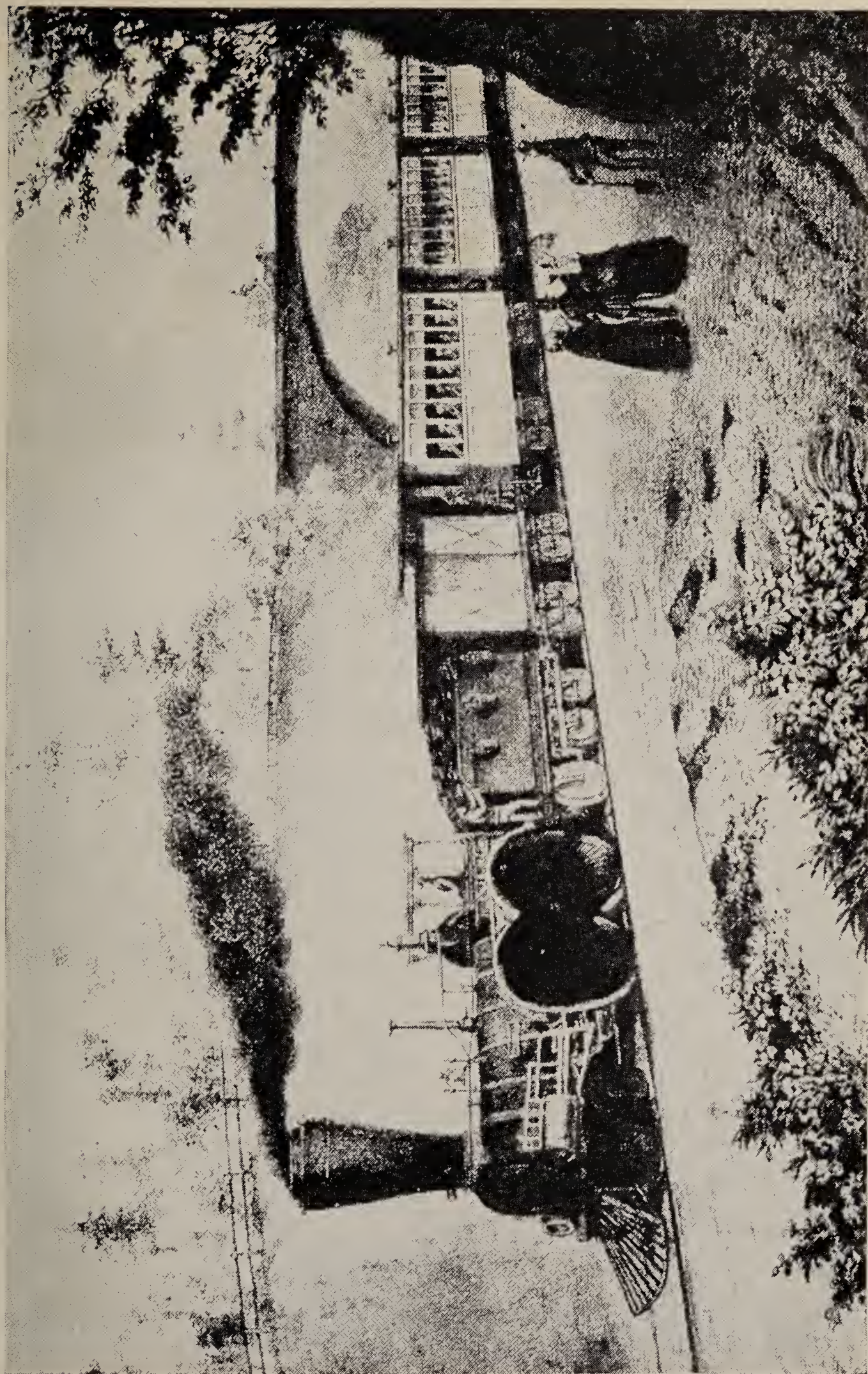
**A WILD CAT TRAIN.**  
No Stop Overs.

Currier &amp; Ives Print









EARLY EXPRESS TRAIN  
Currier & Ives Print







## RAILWAYS

amenities of life were wholly disregarded since men fought for precedence over women as if their lives depended upon getting a seat. Passenger cars were soon packed to suffocation and the overflow found such space as they could in the baggage car and on the platforms. Accidents took terrible toll. Travel then, to those of us who now use Pullmans, dining-cars, and chair-cars, would seem a horrible nightmare.

The Pullman car is the invention of a native of New York. George M. Pullman was born in Portland, Chautauqua county, in 1831, and there learned the cabinetmaker's trade. While still a young man, he went to Chicago and engaged in building, but soon the problem of making long railway journeys less tedious absorbed his time, and, after having converted two railway coaches into sleeping-cars with success, in 1863 he built the *Pioneer* at a cost of \$18,000. This was the first of the cars which have since borne his name. In 1867 he organized the Pullman Palace Car Company from which he amassed an immense fortune. In 1887 he added the vestibuled train to his several inventions.

A period of 15 or 20 years following the Civil War was one of railroad building in the State and the Nation. At the close of the war there were in the United States only about 35,000 miles of railroads, which by 1890 had been increased by 125,000 miles. This increase was greatest of course in the newer states in the West, but New York had its fair share of new mileage to the great advantage of agriculture. The splendid homes and farm buildings to be seen in every rural community in New York were mostly built immediately after the Civil War. In the years just before and just after the War of the Rebellion, New York agriculture was at its best—one wonders if the fields of the Empire State will ever smile again as they did then. Another effect of railroad building in these boom days of new construction and agricultural and industrial expansion was the emigration to America of great numbers of foreign laborers. In New York, the Irish came first, then the Slavs, Poles, and Austrians, lastly the Italians. The vast numbers of cheap laborers thus brought to America profoundly influenced the agriculture of the East and the North as it did the whole industrial life of these regions.

## A HISTORY OF AGRICULTURE

Early railways became of immediate and prime importance to agriculture. The cost of transportation was such that rails could not compete with canals in summer, but in winter they soon were carrying all the freight, and the carrier's occupation on the turnpike road was soon in death agonies. The year around, perishable fruits and vegetables found a much wider market because they could be transported by rail. There had been and could be no considerable dairy industry in the State until the railroads came to provide transportation. Soon there were cattle yards at every station in farming communities. But it is needless to try to enumerate the many advantages which came to agriculture through wonderfully improved transportation. Not the least of the benefits was the added employment given in farming communities. There was great need for labor when the railroad came, and since locomotives burned wood the demand continued long after the road was built. At every station there were long piles of wood stacked for the convenience of the trainmen. The station-master contracted for the wood and paid cash for it to farmers in the neighborhood.

Since the railroad would have to pay a pretty price for its right of way through highly improved farms, it often cut through unimproved neighborhoods and thereby brought into market much land which had long been virgin forest. As road after road was built in the State, large forest tracts were turned over to agricultural enterprises. Perhaps the southern tier of counties profited most in having its forests thus opened.

At first railroads met much opposition from farmers. There were several objections. It was said that they would frighten and destroy livestock and make it impossible to use horses on turnpikes which they paralleled. They would, the conservative farmer said, create a monopoly in transportation. The farmer preferred river and canal carriage, since for \$100 he could buy a boat or with a little expense build one with his own hands which would carry 25 tons or more, a load which would require several of the small cars of the time with a locomotive costing several thousand dollars. A horse cost little, carried his own fuel, and emitted no sparks. Moreover, the farmer had been accustomed to put his assorted produce of flour, pork, hemp, forest products,



fruits, and vegetables in freight wagons or boats and peddle it out at villages on the way to a central market and bring back whatever wares he or his community could make use of. He could not conceive that a railroad could ever haul livestock as the canalboats did. Sparks from the engine would set fire to hay or straw loaded on a freight car; snow would make a railroad impassable for weeks in the winter; rain would gully the track or cover it with debris; the cost of construction and equipment was too great. So the objections ran into innumerable absurdities, we would think now, but what then seemed to be insuperable obstacles.

The agricultural press, farmers' almanacs, all the literature of the day which went into the hands of farmers contained articles condemning the railroad or expressing the disappointment of those who had built high hopes on the new invention. Thomas's *Farmers' Almanack*, probably the best and certainly having the longest run of any of the famous series of almanacs which gave the people on the land their chief reading matter a century ago, gives the following complaint of a farmer disappointed in the railroad:

"All for the railway—and, to be sure, it is a very clever thing, but not altogether so for farmer Credulous as he imagined it would be. It was laid out straight through his valuable and beautiful farm. He thought it would certainly improve it full five hundred fold. But he reckoned up his chickens and counted them all off, not only before they were hatched, but even before the nest was made. Here was an extensive, level plain, where, it was tho't, the rail-cars would skim beautifully for miles upon the surface. 'You are welcome,' said Credulous, 'to pass through my land;' and so they held him to the bargain, and cut thirty feet deep through the centre the whole length of his farm! This was a woful speculation for my old friend Greedy. He now execrates all railways, turnpikes, canals, and internal improvements, without distinction, and considers them but gull-traps for the unwary. When a man gets a good farm, and is able to carry it on, let him think himself well off. Should he have a little cash on hand, it will be convenient enough; but it is unfortunate if he gives heed to every speculation story that is told, and is willing to be flattered into a belief that he is to be enriched by every stone that is turned, and by every new project and plan."

## A HISTORY OF AGRICULTURE

By no means all that was written about the railroads showed ill-will; there were many verbal felicities and much good-humored burlesque and satire in the columns and pages of papers and books which took the railway and its equipment of locomotives and cars as a fair target. One such effort has come down to us as a favorite poem in old school readers and anthologies of American verse. It is the *Rhyme of the Rail*, by John G. Saxe, a happy delineation, the whole composition being an echo of the crowded railroad car. The first two of the ten stanzas are given as reminders, for all past middle age must have known the poem:

“Singing through the forests,  
Rattling over ridges,  
Shooting under arches,  
Rumbling over bridges,  
Whizzing through the mountains,  
Buzzing o’er the vale,—  
Bless me! this is pleasant,  
Riding on the Rail!

Men of different ‘stations’  
In the eye of Fame  
Here are very quickly  
Coming to the same.  
High and lowly people,  
Birds of every feather,  
On a common level  
Traveling together!”

Farmers were not alone in their antipathy to the railroad. The noise of trains would annoy; or perhaps to some industry, such as freighters or canal men, the railroad threatened destruction. In every community there are tales of the turns antipathy took. In Geneva, there is a legend of a colored woman, old Annie Lee, who had such a hatred that when the first train came through she armed herself with an ax and standing in the center of the track threatened destruction to the iron horse. Many times afterwards, the tales continue, she greased the rails and made it impossible for a train to proceed until the iron was sanded or scrubbed.





When the Train struck the light in just 3 minutes.

# A KISS IN THE DARK.

COPYRIGHT 1882 BY CURRIER & IVES NEW YORK

Mischievous Conductor.—“Dark Tunnel, through in half an hour”!

Scene.—When the Train struck the light in just 3 minutes

RAILWAY CARTOON ON THE 1880's  
 Currier & Ives Print





## RAILWAYS

The trains on the early railroads were insignificant indeed if compared to the *Twentieth Century Limited*, *Empire State*, or *Black Diamond* of today; but to eyes unaccustomed to the marvels of inventive genius now to be seen in every part of the country, the first train was much more wonderful than are the flying expresses to the eyes of moderns. Fire from a locomotive that exhaled almost its weight in live sparks in the course of a day's run must have been picturesque and awesome. "Hell in harness" was the name that Davie Crockett gave to the first railroad train he saw speeding across the country on a dark night. The epithet stuck, and was in common usage in early railroad days.

An English traveler of early railroad times wrote:

"June 7. Ther. 58°. Railroad from Syracuse to Auburn.—This railroad was opened only on 5th June, and we travelled on it the third morning of its operation. It was not inclosed, and the domestic animals along the line had not yet become accustomed to the appearance of the locomotive engines and trains. It was a curious study to mark the effects of our train upon them, as it rushed past. The horses in the fields generally ran away, carrying their heads erect, and their ears bent downwards and backwards; and they turned their heads alternately to the one side and the other to catch a glimpse of the dreaded enemy behind. One horse, however, turned round to us, and presented a bold and inquiring front. He erected his ears and turned them towards us, stood firm on his legs, and looked as if he would 'defy the devil.' The sheep and lambs fled in terrible agitation and confusion. The swine early took alarm, and tried to run from before us. When we overtook them, they endeavored, in an ecstasy of fear, to push themselves through the fences, if there happened to be any, or into the banks. The cows fled, but were speedily breathless, and gave up in despair. A huge brooding hen rose suddenly from her brood, and put herself in an attitude of defence, without moving a step. Another hen, without a brood, flew straight up into the air, in a paroxysm of fright. Fortunately none of these animals ventured on the railroad, and we arrived at Auburn, distance of 26 miles, in one hour and ten minutes, without accident or detention."

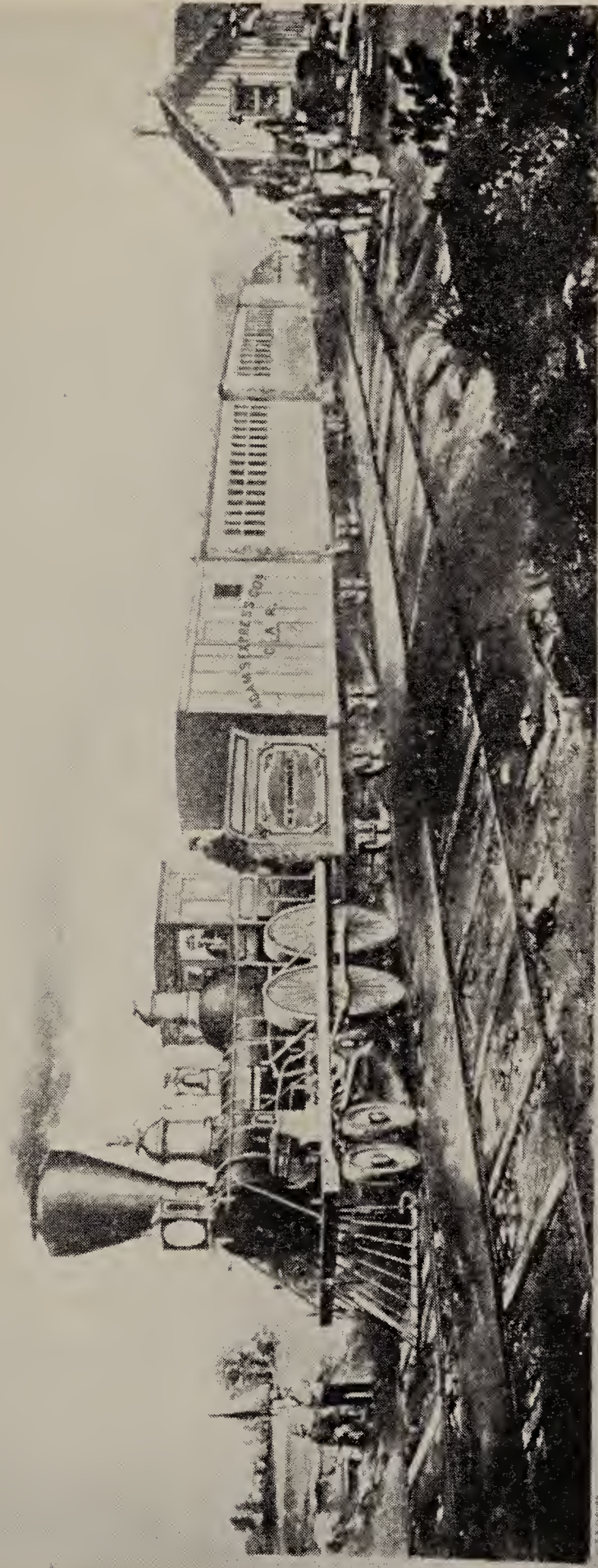
Railroads were not all to the good for agriculture in New York. In the fifties and sixties, whether or not the railway in the eastern

states was an asset or a liability to a farmer was a question for discussion. Rails to the Mississippi and beyond at this time opened up vast quantities of fertile and easily tilled land in the Middle West on which were transported wheat, corn, and livestock to eastern markets at a price which was ruinous to the eastern farmer. Prairie agriculture was far cheaper than woodland agriculture. Farmers in New York and New England emigrated to Illinois and Iowa to homestead prairie land. Abandoned farms in the hills of New England and New York were plentiful as early as the 1860's. At the close of the Revolution, the Hudson River Valley was called "The Bread Basket of the Nation;" the next generation called the Genesee country the "Granary of the Nation." The Erie Canal robbed the farmers along the Hudson of their supremacy as food providers; the railroads in their turn, permitted the establishment of the Nation's granaries farther and farther to the west. Moreover, railroads were drawing heavily on labor from farming communities for construction and operation. It was estimated in 1857 that the roads of the country were employing in one capacity or another 400,000 men, a large proportion of whom came from farms.

As rails reached new western frontiers, farmers in New York and all the East found that the cattle industry had moved West and that the East could not compete with it. The corn growing regions of Illinois, Iowa, Kansas, and Nebraska were the cattle-feeding centers of the country, while the regions farther west and south into Texas supplied the young stock. Even California became a great cattle region and in 1860 ranked sixth in its cattle population. The East could compete with the West in the cattle industry when animals had to be driven long distances and only in spring and fall, but the railroad carried livestock every day in the year and also gave the western cattle grower almost equal opportunity in taking advantage of whatever sudden rises in prices there might be. The eastern farmer could now market to the butcher only dairy cows and working oxen which were fattened and disposed of in the fall and early winter. Cattle in the West fed on government land or in splendid pastures which cost perhaps \$1.00 an acre; pasture land in the east was worth from \$30 to \$100 an acre. Corn in the West sold at from 10 to



# THE ADAMS EXPRESS CO.



THIS COMPANY HAS FACILITIES UNSURPASSED BY THOSE OF ANY OTHER EXPRESS LINE IN THE WORLD, FOR THE SAFE & EXPEDITIOUS FORWARDING & PROMPT DELIVERY OF  
**BANK-NOTES, GOLD & SILVER COIN, PARCELS, PACKAGES, FREIGHT, &c.**  
ALSO FOR THE COLLECTION OF NOTES, DEBTS & ACCOUNTS IN ALL THE CITIES, TOWNS & VILLAGES IN THE EASTERN, WESTERN, SOUTHERN & NORTHWESTERN STATES.

Currier & Ives Print





## RAILWAYS

30 cents per bushel; in the East, at 75 cents to \$1.00 per bushel. Indeed, the railway was not an unmixed blessing to eastern farmers.

The railroad express became a public utility in New York in the early 1840's. The founder of the express business in America was William Francis Harnden, an employee on the Boston and Worcester Railroad. In 1839, he began his express business and carried small packages and bundles over many roads then operating in the northeast. His agents were also authorized to purchase goods, to collect drafts and notes, and to transact any other business entrusted to their care. During this year, the express business of the country was carried on in carpet bags, but in 1840 the Harnden & Company Express, with capital in abundance, began business in a big way. They not only carried packages and executed business orders, but arrangements were made to transport immigrants from Europe to America and by 1845 many thousands of immigrants were being brought over by the Express Company on rails and the Erie Canal. Rivals were soon in the field. As early as 1840, Adams & Company's Express was doing business in competition with the older company. The development of the express business progressed even more rapidly than that of railroad transportation. Year in and year out, in the years that have followed, the express companies of the continent have served agriculture in promoting convenience, cheapness, quickness, and certainty of transportation.

While the railroads were bringing markets to the very doors of the farmers and the towns of the State and country nearer together, still another means of quick communication was developing, a means as well for greater diffusion of knowledge. Samuel Finley Breese Morse, a man of many parts, geographer, portrait painter, professor of literature, in 1837 brought out a really practical telegraphic instrument. Other men had theorized as to the possibility of telegraphy by electricity, and semaphoric telegraph systems had long been in use in the country, but it remained for Morse to invent a workable system of telegraphic stenography to be transmitted by electricity. The idea occurred to Morse "that if the presence of electricity could be made visible in any desired

part of an electric circuit, it would not be difficult to construct a system of signs by which intelligence could be instantaneously transmitted." He carried on a few experiments and the results realized exceeded his "most sanguine expectations." It required but five years for Morse to develop his code and to construct the first telegraph line. Morse's first plan for the telegraph line was to carry it through lead pipes, and Ezra Cornell, founder of Cornell University, in 1843 devised and patented a plow for cutting a trench and laying the pipe. For one reason and another, the lead pipe conduit was not satisfactory. Morse then strung wires on poles, and in May, 1844, a telegraph line was finished from Washington to Baltimore, and when the Whig National Convention in Baltimore nominated Clay for the presidency, news was sent by wire to Washington, the first message of length and importance to be transmitted by wire in the world.

Soon a dozen companies were building lines east, west, north, and south, and by 1846 there were more than 1,200 miles of telegraph lines in operation in the United States. The telegraph, as truly as the railroad, was a transforming agency in agriculture as in all other industries. By 1850, every market town in New York could have market reports as to prices and sales, information that enabled them to dispose of their crops far more advantageously than when such news had to come by word of mouth or be carried by letters. By 1860, more than 50,000 miles of telegraph lines had been built in the United States, and every community newspaper was printing market reports brought to them in Morse's telegraphic code.

Other railroads have helped to create prosperity in rural and urban New York, but those of which notice has been taken give a conception of what railroad building has done for the commercial welfare of the State. They, aided by the telegraph and telephone, turned New York into one great farm and factory. The Erie Canal was a magnificent expression of the inventive genius, resource in construction, and indomitable courage of the people, but the railroad, the telegraph, and the telephone gave greater victories over Time and Distance, to be followed by further conquests by automobile, airplane, and the radio.



## CHAPTER XIII

### SOME CURIOUS INTER-RELATIONS OF RELIGION AND AGRICULTURE

**A**MERICA has ever been the sanctuary of outlawed religions and the birthplace of new denominations. Religion it was, as we are so often told, that brought the Puritans to New England and thence to New York; the German Palatines to the Hudson and Mohawk valleys; the Huguenots to the west side of the Hudson; sprinklings of Quakers across New York's southern boundary; and Roger Williams and his Baptist followers to Long Island. Jemima Wilkinson early brought her colony of Universal Friends to the western shores of Seneca Lake. Mother Ann Lee laid the foundation of what was to be a Shaker empire near Watervliet, New York. The Oneida Community, a product of the great revival of the 1830's, settled in Oneida, Madison county, forming an agricultural and manufacturing center which became a great economic success. Although they had little to do with agriculture, Mormonism, Spiritualism, and Adventism, three of the great religions of the world, had their origin in rural New York during the State's epidemic of religious beliefs. Besides these, native or almost native to the soil, nearly every religious sect on earth and innumerable amazing cults have found sanctuary in urban and rural New York. Throughout the history of the Colony and of the State, religion has been in the air and has everywhere tinged the thought, morals, lives, and actions of the people. Surely, vitality of a sort is shown in these various eruptions of religious genius—vitality, as we shall see, that affected agriculture as well as every other phase of life in New York. The rural builders of New York had a superabundance of spiritual curiosity as well as of animal robustness.

At first, the religion in frontier New York after the English came seems to have been Episcopalian, Presbyterian, and Congregational, but about 1800 the Baptists and Methodists swept the

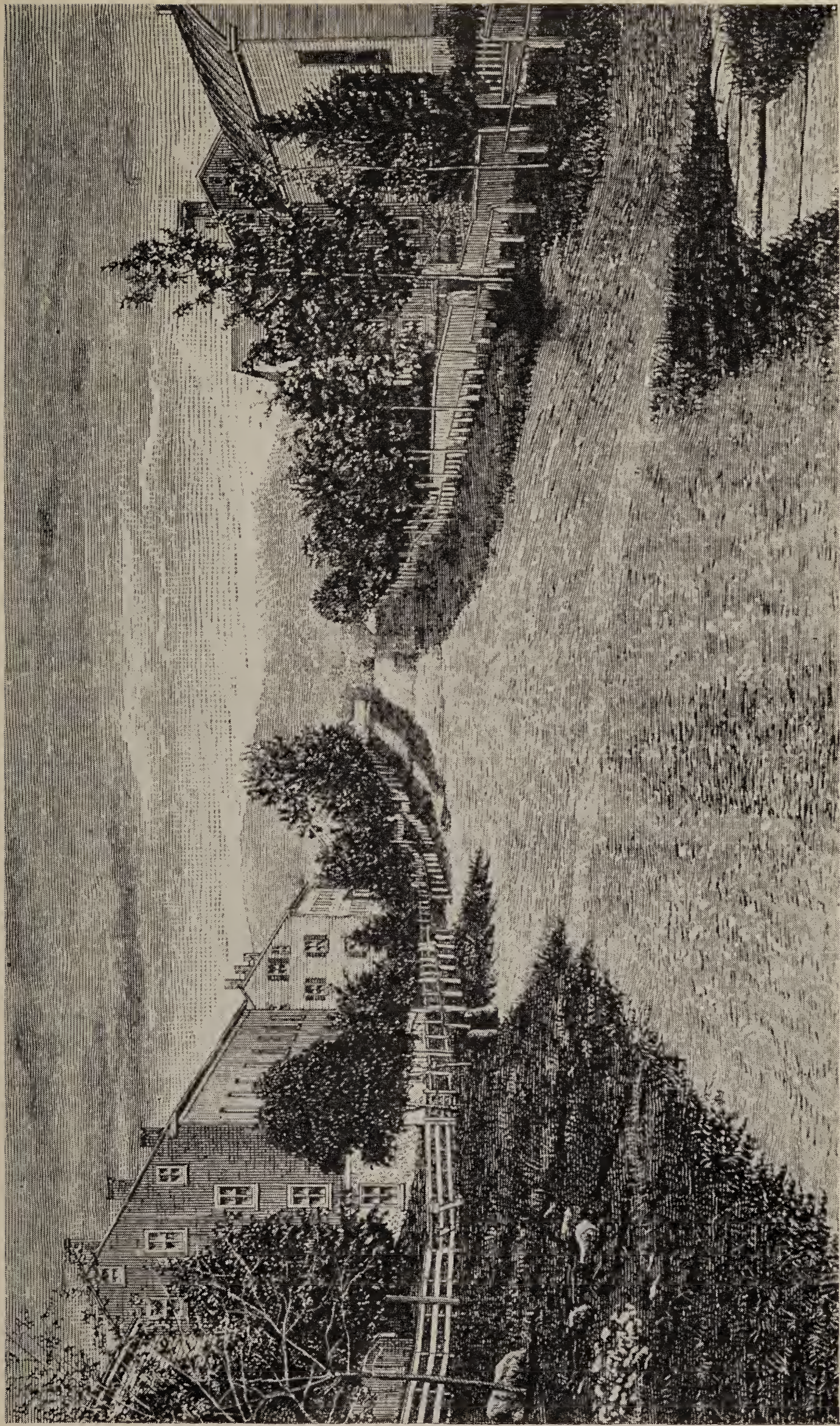
## A HISTORY OF AGRICULTURE

There were too many sects, too many uneducated men in the ministry, too many charlatans. A region that produced Shakers, Universal Friends, Mormons, Spiritualists, and the Oneida Community, fostering as well the religions of the French, the Dutch, the Germans, and the English, could hardly show the united front that New England Congregationalism presented. At no time in the history of rural New York could the congregations be induced to sit, as they are reported to have done in New England, on rough board seats in the freezing cold of an unheated room in midwinter while the preacher turned the hourglass for the third time, the while admonishing his people of the terrors of hell and the glories of heaven. The power of the minister, however, was as strong in New York as in New England in matters temporal and political, and everywhere the minister of an established church was a respected and revered man.

Still there was much wickedness in the new settlement. The restraints of dishonesty and the temptations to over-reach morals and break the commandments are stronger in new territories than in old, thickly populated regions. The explanation is that in the new, family character, local attachments, and various other feelings which influence conduct in individuals are not so well put in force, people are not so likely to remain in the neighborhood a long while, and much of their traffic is with others similarly situated, so that the chances of ever holding further intercourse are fewer and in the event of exposure a change of residence will probably do away with disgrace. Still, again, there is no limit to enterprise and ambition, and most individuals grasp at wealth with little care as to how it is obtained. In the earliest settlements morals were in no way improved by a considerable admixture of trappers and traders, for the most part a wild, drunken, reckless lot, who sponged on relatives in the summer and plied their vocations in the winter, happily away from the settlements for several months in the year.

The New England conscience was early transplanted to New York and thrived in the new environment to flower on the farms and in the villages in harsh and bitter Puritanism. There are accounts innumerable in the narratives of religious revivals which have come down to us in books, newspapers, broadsides, and





THE SHAKER VILLAGE AT MT. LEBANON  
*From an old print*







## SOME CURIOUS INTER-RELATIONS

pamphlets of wonderful conversions in revivals and camp meetings in which hundreds were converted, and more particular and more interesting accounts of individual converts who attracted attention by some peculiarity in their conversion. It is true that few of these converts could quite measure up to Cotton Mather's exemplary Elizabeth Butcher, who when she was two and a half years old asked herself, "What is my corrupt nature?" and answered herself, "It is empty of grace, bent unto Sin, and that continually." At six years old, Mather proudly relates she carried "her Catechism or some other good Book to Bed with her," that she might console herself with religious thoughts in early morning. But the author has seen an ancient portrait of a saintly young man in this State on the back of which is written "Here is Peter Dwight Wright, age 10," in which Peter appears as a saintly young man in a high stock. Then follows, "Peter is president of the All Saints Temperance Society, and he never told a lie."

The earliest of the semi-agricultural religious communities in New York was the Shakers, an American celibate and communistic sect, the correct name of which was "The United Society of Believers in Christ's Second Appearing," a name which some members of the sect interpreted into the shorter one of the "Millennial Church." "Shaker" was applied to the sect because leaping, shouting, shaking, and other motions were once a part of their worship. The Society had its beginning in a Quaker revival in England about the middle of the eighteenth century of which James and Jane Wardley were the leaders, soon to be succeeded by "Mother" Ann Lee. Celibacy was an original tenet of the Shakers in England, although they did not prohibit marriage but refused to accept it as a Christian institution. Soon the sect in England was so persecuted and annoyed that, in response to a revelation, Ann Lee, accompanied by six men and two women, in 1774 came to America, and after a stay of two years in New York City began settlements in the forest north of Albany, New York, in what is now the town of Colonie. Undoubtedly, the Society would have soon come to nothing had there not been in 1780 an intense religious revival in the region about the settlement, during which many of the converts turned to Shakerism.

## A HISTORY OF AGRICULTURE

Ann Lee and her followers, increasing in numbers as the years went by, had no formal organization until 1787, when the Shaker community was organized at New Lebanon, New York, soon to be followed by others in the near-by towns of Watervliet and Hancock. Later a colony of Shakers settled at Groveland, now Sonyea, Livingston county. From these regions as centers, the community sent missionaries to several distant regions who made sufficient numbers of converts to found societies in five different states. In the middle of the nineteenth century, the Society had about 5,000 members and 15 societies, but since that time the membership has steadily decreased until their numbers are now so few that it is doubtful whether it can be said the organization is alive.

With the religious beliefs of the Shakers we are not much concerned. The practical ideals of Shakerism are of more interest. Shakers used alcoholic liquors only as a medicine; the use of tobacco was taboo; and the Shaker diet, while both generous and varied, did not include either meat or fish. The men did the work of the organization in farm, garden, factory, and shop, while the women cooked and tended to the housework and made butter and cheese. There was much inventive genius in the early years among the Shakers and several important manufacturing industries owe their start to their inventions. Agriculture benefited by many suggestions from the Shakers, in which industry they were first, last, and always much interested and many of their members believed it a great mistake to have turned to manufacturing.

The Shakers raised their own food and much to sell. They exercised much skill and ingenuity in manufacturing by-products from the crops they grew. They were the originators of the seed industry in New York and seem to have been the first seed growers to put garden seeds in paper packets. They were first to grow broom corn and to make brooms, having begun the industry in 1798 at Watervliet. The Shakers were the inventors of the flat house broom and of several tools which greatly increased the rate of manufacture. They were the first or among the first to evaporate fruits and vegetables for the market, especially corn, apples, and raspberries. They gathered from the woods or cultivated various medicinal plants and put them up for



## SOME CURIOUS INTER-RELATIONS

the drug trade. They grew poppies, and for a time made most of the opium used in America. One of Mother Ann Lee's adages was "Hands to work and hearts to God," an injunction which they ever strove to observe.

Farm home furniture assumed quite a different character through the influence of the Shakers. They made furniture from local woods, unpretentious in character, but neat, comfortable, and unique. If not originators, they at least built up a demand and invented designs of chairs with splint, rush, and wool-tape bottoms. The earlier designs of New England furniture were greatly modified and changed by the wares made and widely distributed from Shaker communities, sufficiently so to make a distinctive type of furniture. It was the religious intensity, aesthetic restraint, and the unprecedented demands of community life in domestic and industrial routine that gave new character to all the wares made by the sect. Their craftsmen emphasized utility and the elimination of what they considered worldly and extravagant ornamentation. They specialized in beds, drop-leaf tables, slat-back chairs, blanket chests, candle stands, sewing tables, wardrobes, footstools, school desks and benches, heavy kitchen tables, and tables with drawers as well as drop-leaves, all simple but efficient pieces of furniture, which were supplied fairly generously to the neighboring communities and were soon widely copied by other manufacturers of furniture, so that New York farm and town homes of the industrial classes owe much in their furnishings to Shaker craftsmen.

Among those who attempted to raise silk worms in the northeast, the Shakers alone in small measure were successful, at least came more nearly making a success of the silk industry than any other experimenters. A few worms were grown which yielded a little silk, but a good deal of the crude silk was imported from experimenters in the southern states, out of which silk was spun and fabrics woven. The Shakers began this industry in 1832. So far as New York is concerned it came to little but was carried on rather extensively in a Shaker community in Kentucky from the date given until the silk mills in Kentucky were destroyed during the Civil War. They were manufacturers also of cotton and woolen fabrics. For most part the clothes which the Shakers wove

## A HISTORY OF AGRICULTURE

were dyed with home products; peach leaves were used for brown silk; a bright, dark brown was obtained from butternut bark; and a dye of black walnut shucks gave a light sand color.

A kind of headgear worn commonly by women throughout the United States, especially by women on farms, was invented by Shaker women. The curved forepart of the Shaker bonnet was woven with palm leaf in one direction and rye straw in the other. The front edge and the seams between the forepart and the crown were covered with finely woven braid made of oat straw and thread. These braids were beautifully done in narrow, delicate strips. Making straw bonnets was an important industry with the Shakers, and was copied in farming communities in other parts of the State and Nation. Various straw fabrics were woven also for decorating other articles and covering boxes. All in all, the Shakers were splendid stimulators of home and farm industries. There were many inventions and improvements made by them in wares, machinery, and processes not agricultural. Possibly the most notable of these is the steel pen which quickly took the place of the quill in universal use until the twenties and thirties.

In the days of their highest prosperity, the Shakers were quite self-supporting. They raised their own grains, vegetables, and fruits for the table and beverages. They wove the cloth from which the long blue coats of the men and the inexpensive garments of the women were made. Such money as the community needed came from goods produced for sale to the outside world. Their decadence came and they have all but passed from view because they could not compete with cheap agricultural lands and withstand the competition of the machine age. Like most of the communistic cults, religious or otherwise, the foundation was agricultural. With the Shakers, as with many another of the amazing cults and curious religious beliefs started in the first half of the nineteenth century on American soil, the community was brought low by the relentless change of world economy.

The Harmonists, a religious-socialistic-agricultural community, also settled in New York and established two communities. This society was founded in 1787 by George Rapp, a German of Württemberg. The organization soon aroused antagonism and



## SOME CURIOUS INTER-RELATIONS

persecution in Germany, and in 1803 they emigrated to America, took up land near Pittsburgh, Pennsylvania, and organized the Harmony Society. As with the Shakers, possessions were held in a common fund; there was uniformity in dress; celibacy was the rule of life; and the second coming of Christ was taught. In 1814, the Society moved to Posey county, Indiana, but 10 years later the Society's property was sold to Robert Owen and the organization returned to the neighborhood of Pittsburgh and built a community called Economy. Carried away by the eloquence of Owen, who remained in Indiana, enthusiasts bought land and started similar communistic colonies in several states, including New York. About 1826, members of the Society came to Coxsackie and Haverstraw, New York, and made mild attempts to establish farming communities at these places. Neither was very successful, and the Harmonists made little or no impress on the agriculture of the regions in which they settled. As might be expected, if the groups adhered faithfully to celibacy, the communities disappeared in due course, lasting not later than the beginning of the Civil War.

When the first tide of settlers reached the Genesee country in the summer of 1790, they found on the western shores of Seneca Lake near what is now the little village of Dresden, Yates county, fields of clover knee-deep and golden grain ready for the cradle. Clover, wheat, and other farm produce had been planted by Jemima Wilkinson, prophet, priest, ruler, judge, physician, who with her followers had made settlement in the region in 1787. Jemima Wilkinson was a religious visionary, born in Cumberland, Rhode Island, in 1753. She was educated as a Quaker and at 20, after a severe illness, made claim that she had been raised from the dead and that her body had been reanimated by the spirit and power of Christ. She pretended to work miracles and so shrewdly and tactfully maintained her imposture, and so attractive was her personality, that many educated and intelligent people joined her cult. The preacheress called herself the "Universal Friend." In 1786, Jemima Wilkinson induced her followers to found a colony in western New York. The next year, having purchased some 12,000 acres of land from Phelps and Gorham at 18 cents an

## A HISTORY OF AGRICULTURE

acre, she sent 25 of her followers to Yates county to prepare as much as possible of the land for crops. In 1789, Jemima and some 50 or 60 families moved to her western domain, which she called "New Jerusalem."

Jemima Wilkinson's career in western New York is of interest to agriculture because of her many services to early farm settlers in New York. As a Quakeress and a shrewd and tactful diplomat, she made many friends among the Indians in this region of the Six Nations and undoubtedly brought about better relations between them and the first white settlers than otherwise would have existed. Her generous fields of farm crops and herds of cattle, pigs, and sheep were sources from which early settlers within a radius of a hundred miles about drew supplies for a start in farming, and in no small degree prevented the famines that took such terrible toll in settlements out of reach of the Universal Friend. Thus, Jemima Wilkinson becomes in a small way the patroness saint of early agriculture in western New York. The first gristmill in western New York was built by the Universal Friend near what is now Dresden in 1790. Under date of July 4, 1790, Richard Smith, one of Jemima Wilkinson's disciples, wrote in his family bible, "I have this day completed my gristmill, and have ground ten bushels of rye."

Another religion, destined to rise to greater economic importance than any other sect of American origin, had its birth in New York. Early in the nineteenth century there lived in Palmyra, Wayne county, a family headed by one Joseph Smith. His son, Joseph Smith, Jr., had the reputation of being of small account, not because of moral wrongdoing, but because he wasted his time digging treasures, finding water or stolen articles with a forked stick, and because he had "visions." In 1823, when young Smith was 18 years old, an "angel of the Lord came to him" and told him that under a flat stone on a certain hill he would find a book written on golden plates and two stones set in silver bows by which the inscriptions on the golden plates might be translated.

Guided by the vision, Smith went to the hill, now to become Cumorah Hill, found the stone, tipped it up, and peering under saw the golden plates, Urim and Thummim; thereupon the angel





JEMIMA WILKINSON  
*From an old engraving*







## SOME CURIOUS INTER-RELATIONS

of the vision stopped him and told him to go but to return to Cumorah Hill on the fourth anniversary of the night. Accordingly, Smith came into possession of the golden plates in 1827, and set about their translation. After many difficulties, the translation was made and was called *The Book of Mormon*. The plates, it appeared, had been hidden on Cumorah by one of the ancient prophets, Moroni. April 6, 1830, a new religion was added to the babel of sects by the organization at Fayette, Seneca county, New York, of The Church of Jesus Christ of Latter-Day Saints. Sometime in 1830, Smith's translation was published in Palmyra under the title *The Book of Mormon: An Account Written by the Hand of Mormon, upon Plates Taken from the Plates of Nephi*. Joseph Smith's followers became known as Mormons.

This sketch of Mormonism need go no further, and, brief as it is, may seem foreign to a history of agriculture in New York, but it serves to show the confusion of tongues in rural New York, in the whole country as well, which prevailed a hundred years ago. It gives, also, an opportunity to call attention to an economic influence of Mormonism which appeared at a much later date and which still persists. The Mormons, industrious, capable, thrifty, quite abreast of the times in agriculture and commerce, admirable in all secular matters, in the fruits of their religion as well, if we except polygamy now long since a thing of the past, have spread into all of the Rocky Mountain and Pacific states. Here, under dry-farming and irrigation, in both of which they were pioneers, Mormon farm products compete with those of eastern states to an extent that has greatly affected prices paid for New York farm products during the past half century, a factor which undoubtedly will long continue.

Another outgrowth of the religious ferment in New York was a sect variously known as "Millerites," "Second Adventists," and "Seventh-Day Baptists." The founder of the sect was William Miller, a native of Massachusetts, who early migrated to the rural hamlet of Low Hampton, Washington county, New York. Miller's life is typical of that of other founders of religions in the matters of changing his beliefs and following various vocations.

## A HISTORY OF AGRICULTURE

He was first a prosperous Green Mountain farmer, then a recruiting officer in the War of 1812, a versifier, so ready and smooth that he was called "the poet of Low Hampton," and finally creator of a religious sect. In early manhood, he read and advocated the teachings of Voltaire and Thomas Paine, and became an ardent atheist. Afterwards, he accepted Christianity and joined the Baptist Church; left, so he said, "not a sentence of the Bible unstudied from the first sentence to the last," concentrating upon Bible prophecies, particularly those of the second coming of Christ. In 1831, Miller had a conviction that to him had been given the key unlocking Biblical prophecies; further, that he was commissioned to go forth and proclaim that in twelve years the end of all things would come; that sometime between March 21, 1843, and March 21, 1844, Jesus would appear in person to judge the world. Vast multitudes including many ministers from other churches became followers of Miller and at the appointed time assembled in various places to welcome the coming of the Saviour. The dates came and went, but Jesus did not appear.

In April, 1845, Miller called a convention in Albany, New York, of the still-faithful, more than fifty thousand in all, and issued a declaration of belief and adopted the name "Adventists." The leader of the sect died in 1849, but his church has maintained its vitality in the face of repeated disappointments and not a little persecution. The part that the Adventists played in the agriculture of New York, of the country for that matter, was no small one. At the time set for the coming of Christ, especially in 1843, 1844, and 1845, farmers in great numbers neglected planting, harvesting, and the care of their animals, to the general detriment of farming communities in several parts of the State and country. Again, one of the tenets in the Adventists' creed was vegetarianism, which, put in practice by a considerable body of people, affected agriculture. Father Miller's book, *Dream of the Last Day*, was widely read by others than those in his flock and must have had a considerable influence quite outside the church. The Adventist practice of celebrating the sabbath on Saturday instead of Sunday had its effect on the life of communities in which the sect was strong. The church still survives with some sixty to seventy thousand members, with a stronghold in America at



## SOME CURIOUS INTER-RELATIONS

Alfred University, Alfred, New York, Allegany county, an agricultural community strongly influenced by the religious sect which dominates it.

Another religious cult which flourished in the heart of agricultural New York was the Oneida Community, an American communistic society, which came into being in 1838 at Putney, Vermont, under the name "Perfectionists." This organization was the product of the religious revivals of the 1830's, and of the mind of John Humphrey Noyes, a graduate of Dartmouth College, who was first a Congregational minister. Noyes professed to have received a second conversion and at a revival announced himself as a "Perfectionist," or one who, believing that Christ had come again A. D. '70, was absolved of all past and future sins. Another cardinal belief was that selfishness was the chief sin of



HOME OF THE ONEIDA COMMUNITY, 1854

human kind and that communism was the best means of overcoming it. On this second tenet, the Perfectionists established a commune in which they pooled all their property, renounced all religious observances, denied allegiance to the United States, and instituted a free-love marriage system, since monogamy was antagonistic to communism. All might have gone well with the organization had not their doctrine of free love been carried too far. The churches in Vermont disapproved a doctrine that every man was, potentially at least, every woman's husband; and every woman, every man's wife. Eventually, this free and easy marriage system brought the cult into the courts of Vermont, and the Per-



fectionists were forced to leave Putney. Thereupon, in 1847, they purchased a tract of land near Oneida, Madison county, New York, and the cult took the name "Oneida Community."

The purchase of the land in Madison county, which proved to be extremely productive, turned out to be a very good investment. The members of the community, some 300 in number, were mostly New England farmers and mechanics, industrious and excellent citizens, differing only from other worthy New Englanders in their religious beliefs and in their very strong desire to put in practice a theory of eugenics which would produce the best possible offspring. During the first 10 years the Community did not make much progress, but as the land they cleared came under cultivation, orchards came in bearing, and the profitable industries of milling, blacksmithing, and manufacturing steel traps were well established, the Community began to thrive. In time the steel trap industry became one of considerable size, and the denomination took on other industries, of which the making of silver-ware and embroidery silk proved most stable and profitable. Meanwhile, farming in the rich agricultural lands was successfully carried on and the Oneidians began to can large quantities of fruits and vegetables; soon farms, nurseries, orchards, and gardens became models of their kind in central New York. A weekly paper, *The Circular*, was published which gave more or less attention to agricultural matters. But now opposition from the churches arose, and the marriage system, which as in Vermont was the chief objection to the cult, had to be abolished. This was done in 1879, and the sect then reorganized into a joint stock company, known as the "Oneida Community, Limited," a name which it still retains. The present company has no connection with the old one beyond traditions which it inherited from the 40-year experiment in communism. Meanwhile, most of the farming lands have been sold, canning and the growing of fruits and vegetables have been curtailed, and the company is chiefly interested in the making of steel traps and silver-ware.

Of no significance to agriculture, but another sign of the psychic unrest in rural New York was "Spiritualism." Broadly speaking, Spiritualism, certainly as applied to the many religions



## SOME CURIOUS INTER-RELATIONS

of the human race and probably in the narrower sense of a religious sect, dates back through the centuries, but this Spiritualism of which we commonly speak in discussing religious sects had its origin in western New York less than a century ago. In the 1840's, there lived in the little town of Hydeville, Ontario county, New York, a family by the name of Fox, consisting of the head of the house, his wife, and two daughters. Early in the winter of 1848, first the daughters and then the parents heard mysterious rappings on the floor of the bedroom in which the daughters slept. The Foxes believed that the rappings were of spiritual origin, and soon had a large following who were convinced that the mysterious sounds were a means of talking with departed souls. The family soon moved to Rochester, where the rappings continued and where there was a much larger audience. The phenomena then became known as "Rochester rappings," and in the autumn of 1849 Rochester rappings became the foundation of modern Spiritualism.

Very few of the country people in western New York gave heed to these spirit rappings of the Fox sisters. By most, they were regarded as a sleight of hand humbug. A current joke was that though the spirits seemed to be stout, able-bodied chaps, judging by the weights they lifted and the heavy furniture they banged about, they could not be made to saw wood, grind corn, or do chores. Spiritualism took stronger hold in towns and cities than in the country, but even in these populated centers few intellectual leaders or strong-minded characters followed the mediums. A "rapping-storm," as the seances or early meetings were called, was usually a source of entertainment and curiosity rather than of worship in western New York farming communities.

The Quakers were another of the various religious sects which settled central New York and profoundly affected the agriculture and civilization of the region. As early as 1790 a colony of Quakers, under the leadership of Nathan Comstock, came to Ontario county and founded the settlement of Farmington. A little later companies of Quaker pioneers emigrated to Cayuga, Wayne, Schuyler, and Chemung counties. Wherever there were settlements of the Society of Friends, agriculture flourished. From

## A HISTORY OF AGRICULTURE

the Friends came several notable benefactors of agriculture; as, Jethro Wood, inventor of the cast-iron plow; Jonathan Swan, also inventor of a plow; the two Thomases, David and John, nurserymen, pomologists, and horticultural writers; several generations of Howlands, farmers and millers; and the Herendeens, manufacturers of farm implements.

The times that produced Mormonism and Spiritualism were productive of many psychic, economic, health, and political movements throughout the country, of which New York had its full share. Water cures were built; vegetarians began a crusade against the use of flesh as a human food; devotees of bran bread united under the leadership of Graham; Fowler, an American, and Coombs, an Englishman, toured the country preaching and practicing phrenology; there was a craze for blue glass, for nurseries and school rooms as a cure for certain diseases. Fowler, the phrenologist, published a book advocating octagon houses, with the result that nearly every community in New York has at least one of these freak structures. In 1850, the first women's rights convention was held, and legislatures before and after this date were passing laws giving women the right to hold, convey, and devise real and personal property. The time had come when women were to enter the professions of theology and medicine and to have equal rights in the colleges, trades, and business with men, and the demand was made that they receive the same wages as men for the same work. Lucretia Mott, Elizabeth Cady Stanton, Mary Ann McClintock, and Martha C. Wright issued a call in the *Seneca County Courier* in 1848 for a Women's Rights Convention to be held in Seneca Falls, New York—the first of such conventions. Anti-slavery agitation was everywhere gaining ground in the North.

Among the leaders in women's suffrage and anti-slavery movements was Amelia Bloomer, of Seneca Falls, who preached that it was absurd for women to ask for social, civil, and political rights while they continued to wear long skirts and corsets. Lucy Stone, Susan B. Anthony, and Elizabeth Stanton, all products of rural New York, joined Amelia Bloomer in a crusade for a better costume, which was to consist of gaiters, loose Turkish trousers,





THE BLOOMER COSTUME  
*Currier & Ives Print*





## SOME CURIOUS INTER-RELATIONS

a shirt that came to the knees and a short jacket. In the face of much ridicule and abuse the movement for dress reform and the use of bloomers came into being.

Another illustration of the state of mind of the people of the time was the agitation for prohibition, a movement which profoundly affected several agricultural crops. Historians of western New York say that the first public resolutions ever adopted in favor of total abstinence were passed by the Ontario Presbytery in August, 1827. It seems that the temperance question was as hotly debated then as now, although possibly there would not be opposition among Presbyterian ministers to a resolution favoring total abstinence now as there was in 1827, when a considerable number of the Ontario Presbytery opposed total abstinence, and claimed the right "to treat their friends politely." From 1827 on western New York seems to have been strongly in favor of temperance reform and a list of societies, noted addresses, circulars distributed, and distinguished leaders which the region gave to this cause would constitute a chapter, and a large one, in the history of temperance reform in America.

In the 1830's, the campaign against intemperance took the turn of moral suasion. Temperance lecturers toured the country, depicting the horrors of the liquor habit and persuading their hearers to sign a pledge to abstain from strong drink. Toward the middle of the nineteenth century, the liquor traffic was attacked in the legislature of New York and those of various other states. Manufacturers, distillers, and saloon keepers were to be licensed and regulated. Then as now, law makers were afraid to refuse and afraid to comply, and then as now asked the people through special elections in cities, towns, and states as to whether there was to be license or no license for traffickers in liquor. These were the days of Father Matthew, the Apostle of Temperance; of Neal Dow, father of the Maine Liquor Law; of John B. Goff, who thrilled audiences all over the country with passionate appeals to sign the pledge and fight the devil of intemperance. A craze for temperance legislation struck the whole country and was stopped only by the Civil War. Reading the histories of the times, it is certain that the agitation pro and con in the matter of alcoholic beverages was quite as ardent and followed much the

## A HISTORY OF AGRICULTURE

same course in communities and states as that we are now having in the matter of national prohibition. The movement was and is of importance to agriculture in a way that almost no other industry is affected, since both fermented and distilled liquors are made from farm crops.

Agricultural writers nearly always link the remarkable changes which took place in rural America in the first half of the nineteenth century with economic factors; with the invention of farm tools; the improved means of transportation; the movement of agriculture to western frontiers; and the change from home manufacture to factory-made products. These, no doubt, were the great forces in the remarkable revolution which took place on farms in this important period. But other profound forces were at work as well. There can be no doubt but that the seething religious, humanitarian, and political life of the time, in a country that was almost wholly agricultural, intertwined with the economic factors to affect agriculture.



## CHAPTER XIV

### HUMAN LABOR DISPLACED BY MACHINERY

**T**HE art of agriculture was revolutionized when some inventive genius contrived to overturn the earth by means of the forked limb of a tree, drawn by a camel, horse, or ox. This unknown servitor deserves a place among the benefactors of mankind beside the inventors of the wheel, ore-smelting, and fire-making. Agriculture was primitive indeed when the soil had to be turned and stirred with hand-delving tools. Those peoples who early acquired resources in the way of implements drawn by animals inevitably overcame in competition the folk who were denied that advantage. It is probable that the first power tool was a plow, after which the domesticated animal that turned the soil was put to other farm uses in which perhaps a sled, or stone-boat, took its place beside the plow in farm work.

It may be that the sickle was the first metal tool in farming. "Thou shalt not move a sickle in thy neighbor's corn," was a command of Moses. The sickle was almost universal in American agriculture until well toward the end of the eighteenth century, when the cradle came into use for cutting grain. The art of cutting grain with hand tools is of all farm operations most suggestive and "sickle," "scythe," "reaping," "mowing," are more often found in sacred and profane literature to adorn a figure or point a moral than any other farm words, frequently as "plowing" and "threshing" are used.

One need not dwell at length on the changes that have come to agriculture in the displacement of farm labor by machinery. Two examples suffice. A survey made by a worker in the United States Department of Agriculture cites the corn-sheller and the combine-reaper as outstanding examples. In the case of the corn-sheller, it is estimated that 1.6 men operating a mechanical corn-sheller displace the handwork of 166.6 men, a 99 per cent labor displacement. In this case one man does the work of 100. The

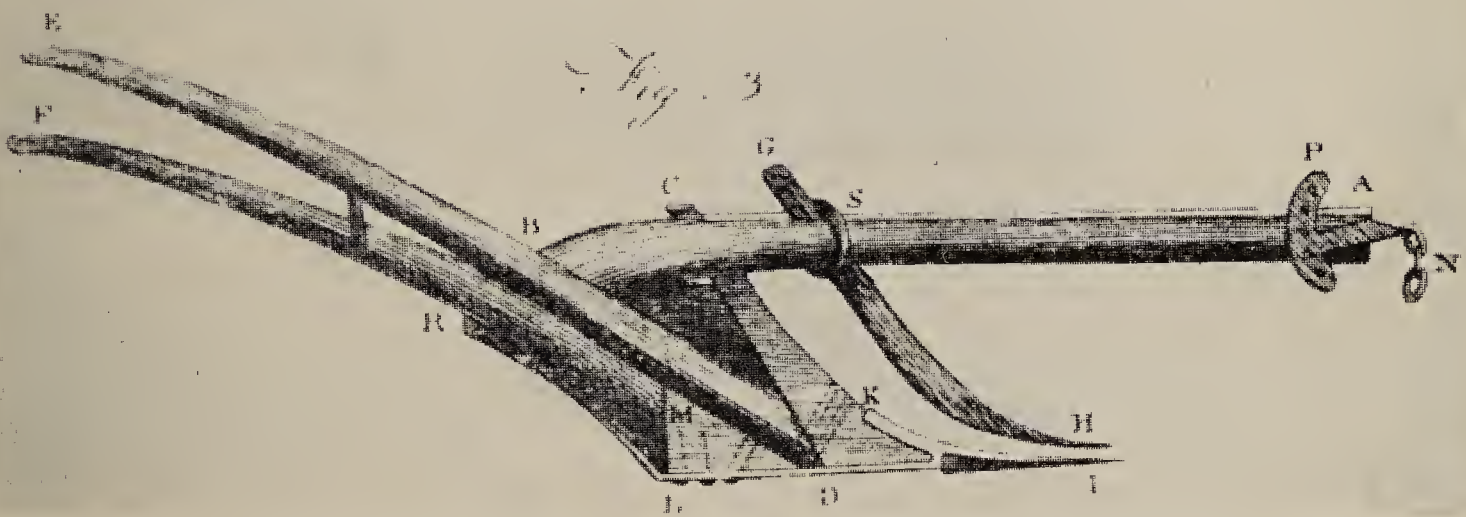
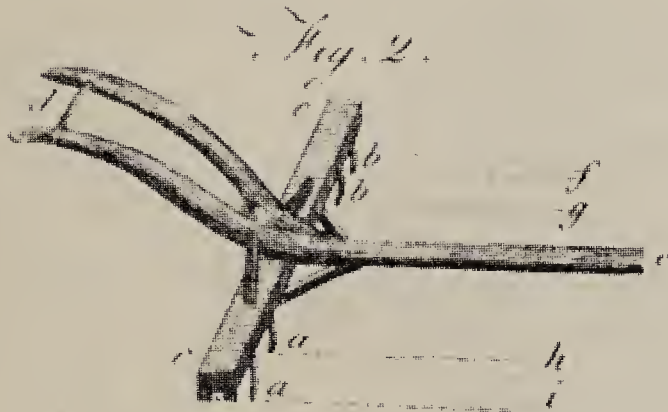
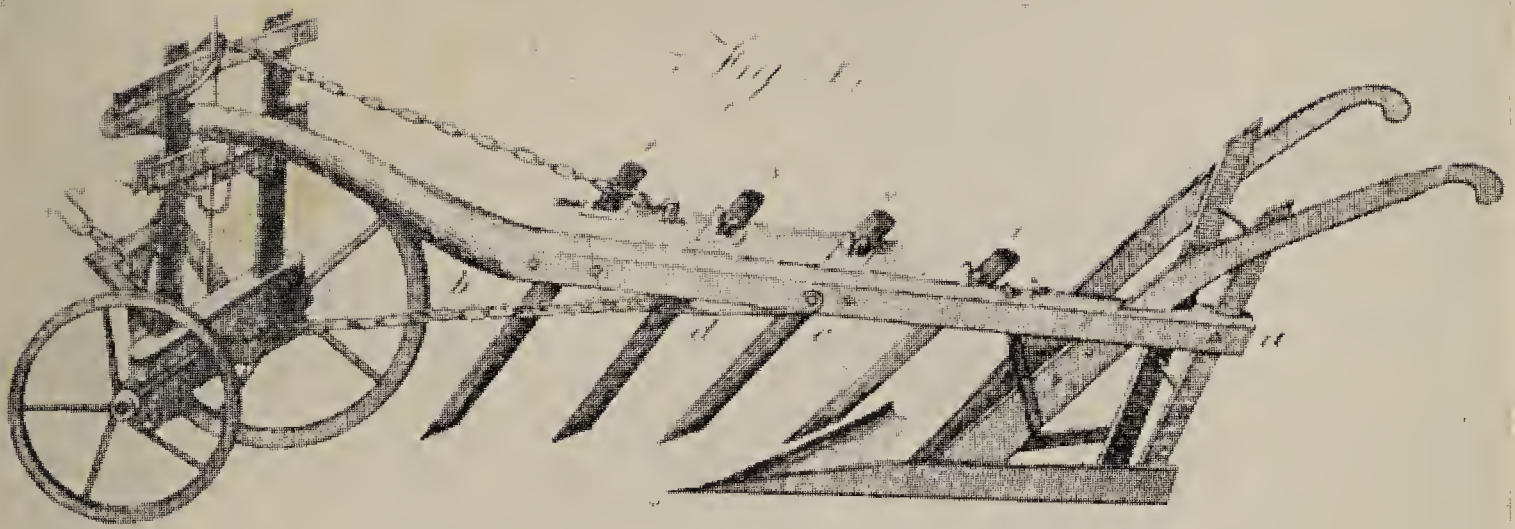
## A HISTORY OF AGRICULTURE

165 human corn-shellers are unskilled labor, but the reaper-combine displaces 170 unskilled and 145 skilled workers. The combine displaces the reaper, the binder, the threshing machine, and the various power engines formerly required to operate each. One engineer only is required to operate the reaper-combine. These are but two examples out of hundreds that might be cited among the labor-saving devices that are revolutionizing agriculture.

The coming of the machine age in other occupations has had an effect on farming probably quite as profound as the invention of tools for the farm. The industrial revolution has taken millions of farm laborers, looking at agriculture the world over, from the land to the cities. We in America are apt to maintain that the machine age has modified trades and agriculture more and sooner in our country than in any other. This might be true were we to consider agriculture only, but if all industries be included probably America was not so quickly nor so greatly changed by the revolution as was Europe. Free land and the free life on the farm gave opportunities to American laborers that European workers, forced to earn wages in factories, have not enjoyed in the two centuries that America has been a farming country. In any consideration of farm machinery, however, it must be conceded that the demands of a pioneer life forced upon Americans unusual versatility and inventiveness, so that probably American farmers lead those of all other nations in the use and fondness—almost worship—of farm machinery.

American agriculture was in a bad way as to field work at the close of the Revolution. Farming land was, except in the older settled communities, still covered with stumps and infested with large boulders. In plowing these lands, the farmer was careless as to the width of the furrow and as to whether it was straight or crooked. For some reason or other it was generally thought that land for wheat and other grains ought to be plowed two or three times. Later the harrow came into use and the three-times plowing was dropped since a much smoother seedbed was made by harrowing. The methods of cultivating, sowing, harvesting, and threshing were as primitive as the plowing. Grains and grass seeds were sown broadcast until well toward the close of the first quarter of the nineteenth century. The A-shaped drag was the





WOODEN PLOWS OF THE COLONIAL PERIOD  
From Forsyth "Principles of Agriculture," 1804





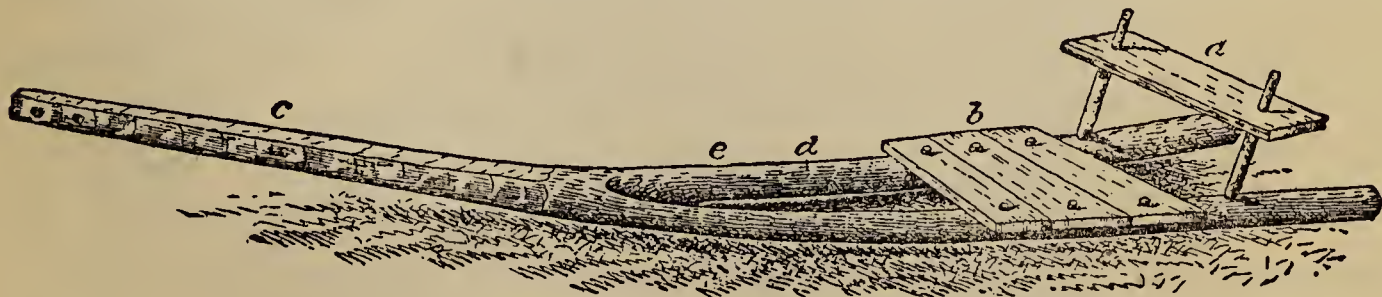
## HUMAN LABOR DISPLACED BY MACHINERY

common pulverizer and leveler. Cultivators were nowhere in use. The favorite way of sowing clover and grass seed was to broadcast in March, when snow was still on the ground so that foot-marks could be plainly seen to guide the sower in crossing the land. All grains, except corn, were cut with the grain cradle, which by this time had come to take the place of the sickle, and the swaths were raked and bound by hand. Hay was cut with a scythe, raked by hand, and loaded with a fork. Corn was usually planted on a ridge formed by a one-horse plow and was cultivated with the same implement. Some planted crossways between these ridges, going as the eye directed; no one as yet had thought of a marker. The corn cultivator did not come into use until about 1840, to be followed by a wheel cultivator at a considerably later date.

Wheeled vehicles were almost unknown to early settlers in central and western New York until well after the turn of the nineteenth century. Their place was taken by the "log-boat" and the "log-sled." The log-boat was formed out of the crotch of a tree shaped by the axe to slide over the ground. It was much like the skid-boat to be found on every modern farm except that often the boat had neither top nor bottom, planks for which would have been difficult to obtain. Oxen were attached to the log-boat by a chain. The log-sled was an improvement upon the log-boat. In construction it was much the same but the forks of the triangle were left longer with a view to securing curved runners. The main stem of the log-sled was left to form a tongue to which the oxen were attached. The log-sled had



LOG BOAT OF EARLY SETTLERS



LOG SLED OF EARLY SETTLERS

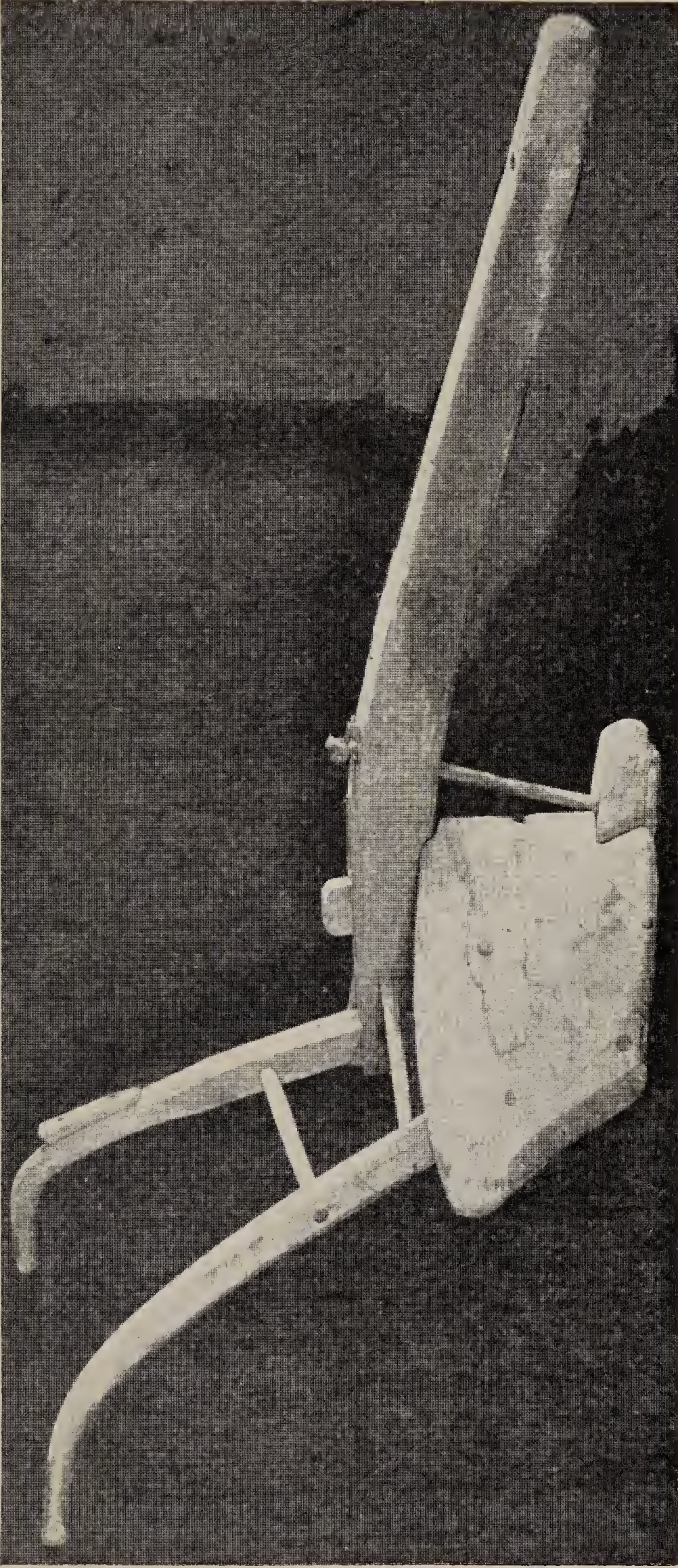
## A HISTORY OF AGRICULTURE

a rough floor and a raised bench for a seat. This was the conveyance that took the grist to the mill, farm produce to the house or barn, and often the women and children rode to church, social gatherings, and long distance visits on a log-sled. Since roads in these early days were never graded and were made still rougher by stumps, stones, and fallen timbers, a ride on a log-sled for any great distance must have been a terrible ordeal.

Connecticut, in early days, was called the "Mother of Invention." But it is doubtful if she gave agriculture nearly as many inventions as New York. Cayuga county seems to have been the particular spot in this State in which inventors turned their attention to agricultural implements. From the opening of the patent office in Washington to November 30, 1880, inventors in Cayuga county took out 68 patents for harvesters; 11 for carriage axles and boxes; 12 for plows; 10 for harvester knife grinders; 8 for threshing machines; 8 for churns; and a considerable number for an assortment of minor farm implements, such as spinning wheels, washing machines, harrows, mill stones, hand rakes, pumps, animal pokes, saddles, fanning mills, harnesses, fence wire, and many lesser articles. Probably the most important of these patents was one taken out by Jethro Wood for a plow.

In the valley of Owasco Lake, Cayuga county, is the little town of Montville, which came into being because of power furnished by Montville Falls. Montville in the very first settlement of the county, to be exact in 1799, supported a barrel factory, trip-hammer, harness factory, plow factory, distillery, scythe factory, gristmill, linseed oil mill, augur factory, and woolen mill. This statement of Montville's industry is set forth because it gives an idea of a typical pioneer hamlet in central New York. It gives opportunity also to call attention to a bit of history connected with Montville's woolen mill. It was there that Millard Fillmore, thirteenth President of the United States, served an apprenticeship which gave him the distinction of being the first tailor to become the head of a nation. Montville was the birthplace of Millard Fillmore. A few minutes' ride from Fillmore's birthplace brings one to the boyhood home of John D. Rockefeller. But it is neither Fillmore nor Rockefeller that are of prime interest as





A SENECA COUNTY PLOW IN THE YEAR 1792  
*From Van Wagenen "Golden Age of Homespun"*



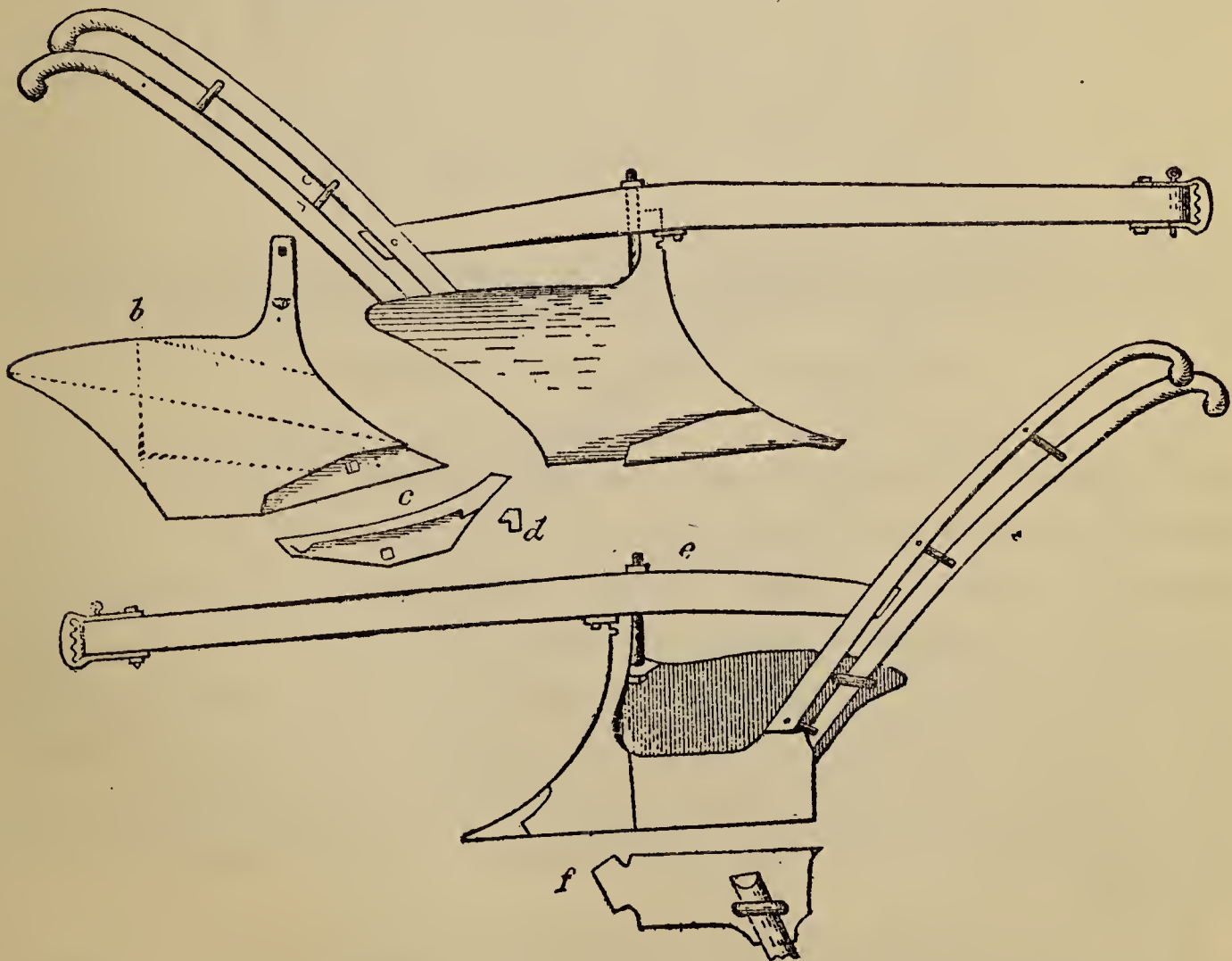




## HUMAN LABOR DISPLACED BY MACHINERY

natives of Montville in this history of agriculture. In the outskirts of Montville, at the beginning of the nineteenth century, stood an old foundry and plow factory in which John Jethro Wood in 1819 made a cast-iron plow, and by this admirable invention became one of the world's benefactors.

Jethro Wood was born at White Creek, Washington county, New York, March 16, 1774, and died in the town of Ledyard, Cayuga county, September 18, 1834. He came to Scipio, Cayuga county, in 1800. It is said that when Jethro was five years old he melted his mother's pewter spoons and cast a mould board for a small plow to draw which he harnessed a cat with leather and buckles cut from his father's harness. The whipping that followed deferred further experiments until the youngster left home when it is related he again began to experiment on plows of which he made miniature models from turnips and potatoes. Active experiments on a real plow began in 1812. The first patent was obtained in 1814, and the final patent on the perfected plow was given him in 1819. Legend has it that the first plow

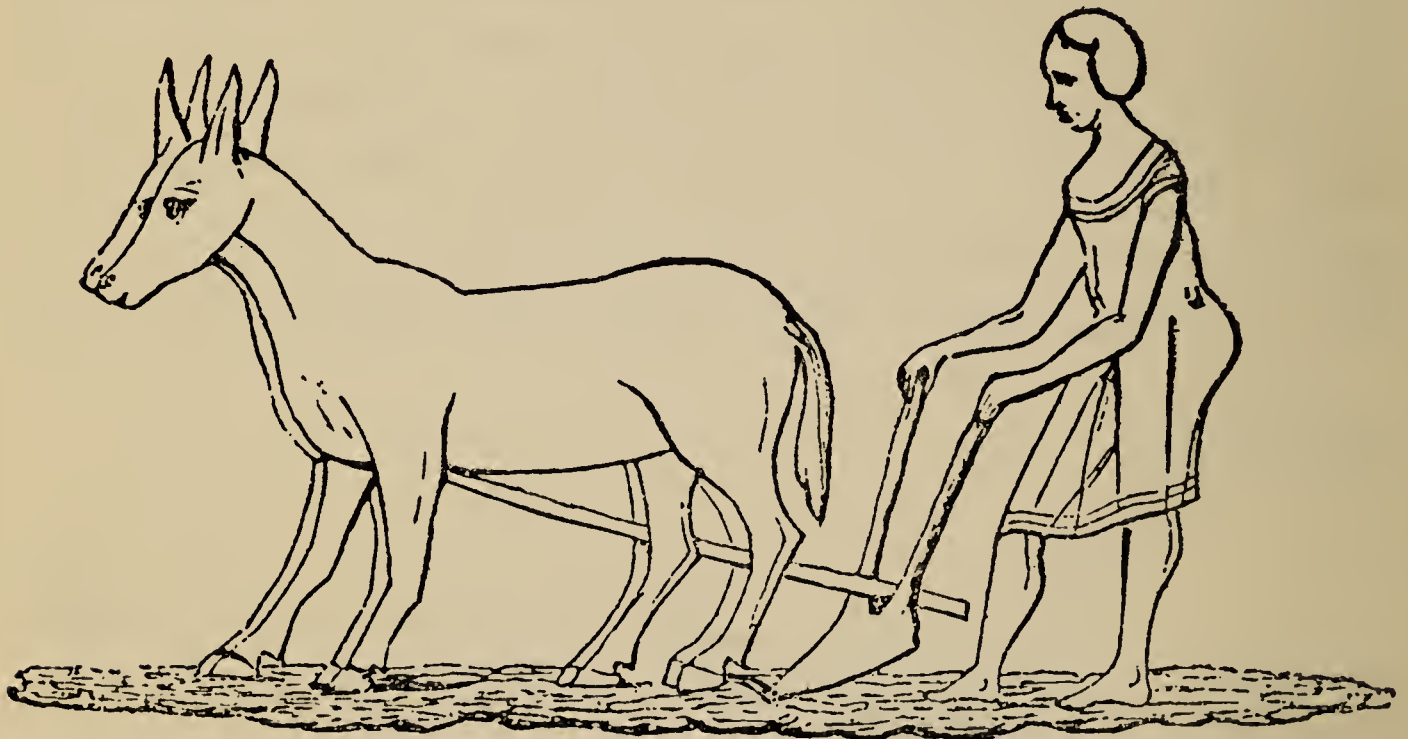


JETHRO WOOD'S CAST-IRON PLOW

## A HISTORY OF AGRICULTURE

was cast at Poplar Ridge, near Montville, from iron melted in a potash kettle lined with clay. Charcoal was used for fuel and blacksmith's bellows furnished the blast. There was much difficulty in obtaining proper kind, quality, and mixture of iron and it required many wooden patterns from the hands of a carpenter who had only a model made from a potato. Jethro Wood spent eight months in making his first plow.

Wood was not the first man in America to take out a patent on an iron plow. That honor seems to belong to Charles Newbold of New Jersey who obtained a patent in 1797 for a plow in which a share was made of wrought iron. When this patent was taken



THE PLOW OF THE EARLY EGYPTIANS

out the plow in common use was of wood shod and reinforced with strips of iron. David Peacock, of Burlington, New Jersey, patented a plow in 1807 with a cast-iron mould-board and wrought-iron share. Roswell Towsley, Matthew Patrick, and Jonathan Swan, all of Cayuga county, New York, each patented plows which antedated Jethro Wood's cast iron plow, but Wood's plow seems to have been the best of these several inventions, or, perhaps, he was best able to manufacture and sell the product of his genius.

To secure a patent and to manufacture did not end Wood's difficulties in bringing his plow into general use. There seems to



Fig. 1.

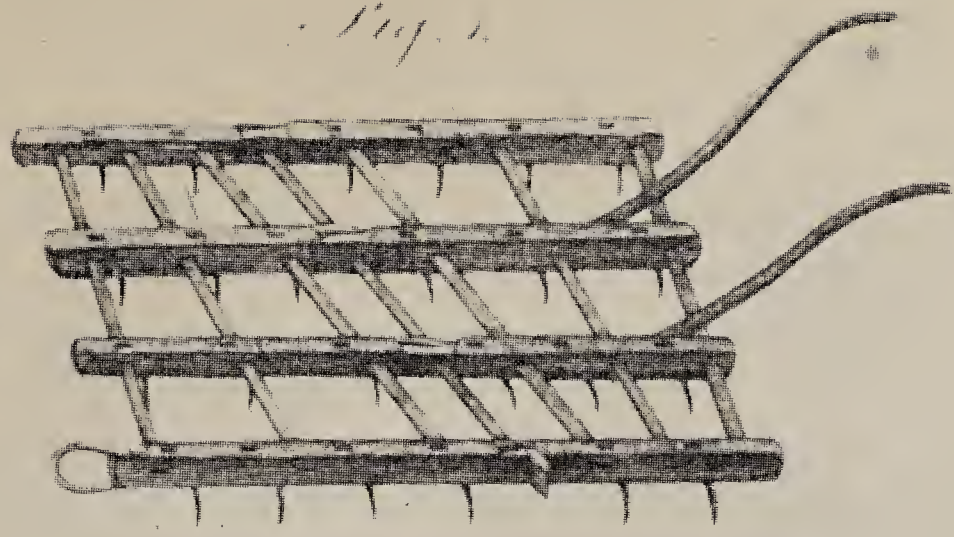


Fig. 2.

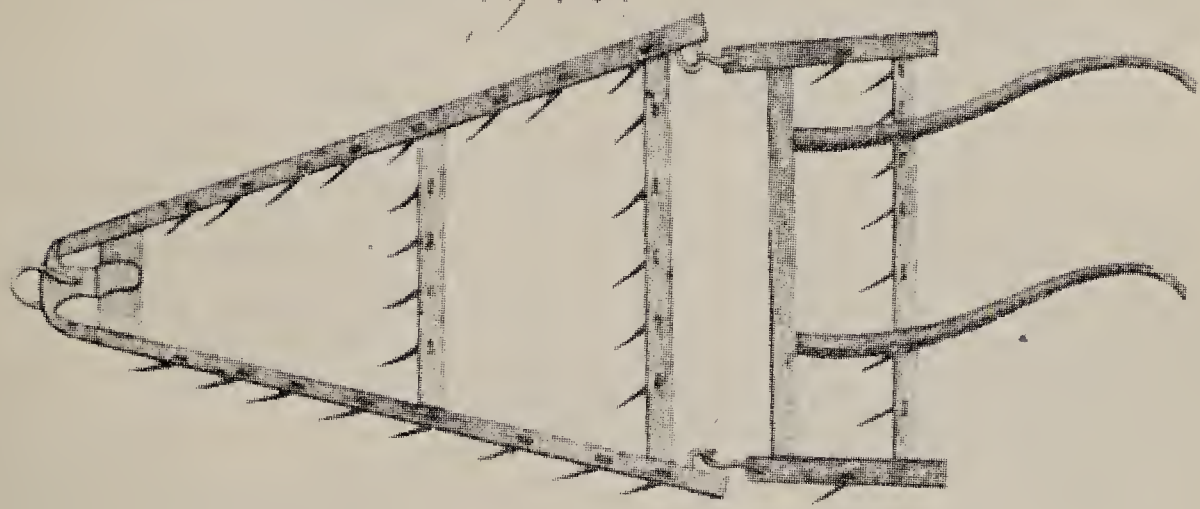
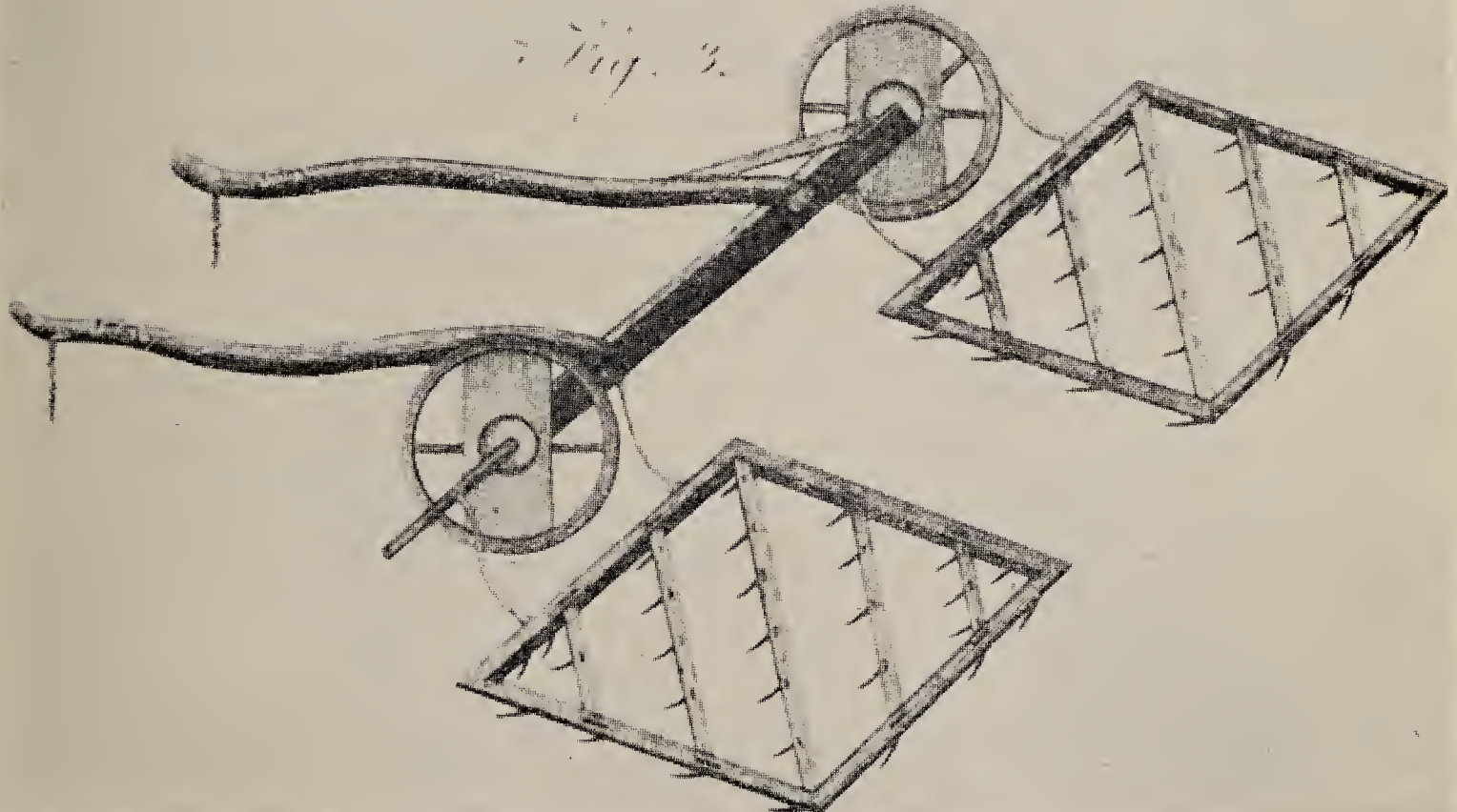


Fig. 3.



HARROWS OF THE COLONIAL PERIOD  
From Forsyth "Principles of Agriculture," 1804





have been great prejudice on the part of farmers against metal mould-boards. Wood had to give plows to farmers to get them introduced. Long before they were in common use the patent expired and an extension had to be obtained in 1832. Meanwhile others had begun to manufacture cast-iron plows and refused to pay Wood royalties so that the inventor had to carry on expensive suits to maintain his rights of patent. Thus, although Jethro Wood was not the original inventor, he was the first successful introducer of a cast-iron plow. His was the first perfected implement constructed on scientific principles so that every inch of the surface bore equal pressure and all parts had like wear. The Wood plow of 1819 was the first such tool to possess all of the important features of plows in use on the farms of today. Just as Fulton, though not the inventor of the steamboat, must be given credit for its success, so Wood is by common consent considered the man who gave agriculture the modern plow.

It would be interesting to follow further the history of Jethro Wood and his plow; the wrongs he suffered at the hands of dishonest infringers; the honors conferred upon him late in life for his invention; the story of the introduction of the plow into Russia and the gift in return of a diamond ring from the Czar of Russia and its appropriation by another person; and, in the end, his death without profit from his invention. The complete story is a most dramatic recital illustrating the difficulties which so many inventors have had to overcome in perfecting and popularizing the products of their genius.

Probably the first harrow agriculture knew was the top of a bushy tree, a make-shift used even at the present time for covering seeds on friable soils. This implement in New York was called a "brush-drag." The brush-drag could not have been a very effective implement on heavy soils, and no doubt about the first improved harrow to come on a farm was the heavy wooden drag shaped like a capital A. This implement was a leveler, pulverizer, and seed-coverer. The frame had to be of a heavy and durable wood to endure continuous thumps against stumps and stones in newly-cleared land. The teeth, too, were substantial, sometimes enormous, a foot or more in length, and an inch and a half square—

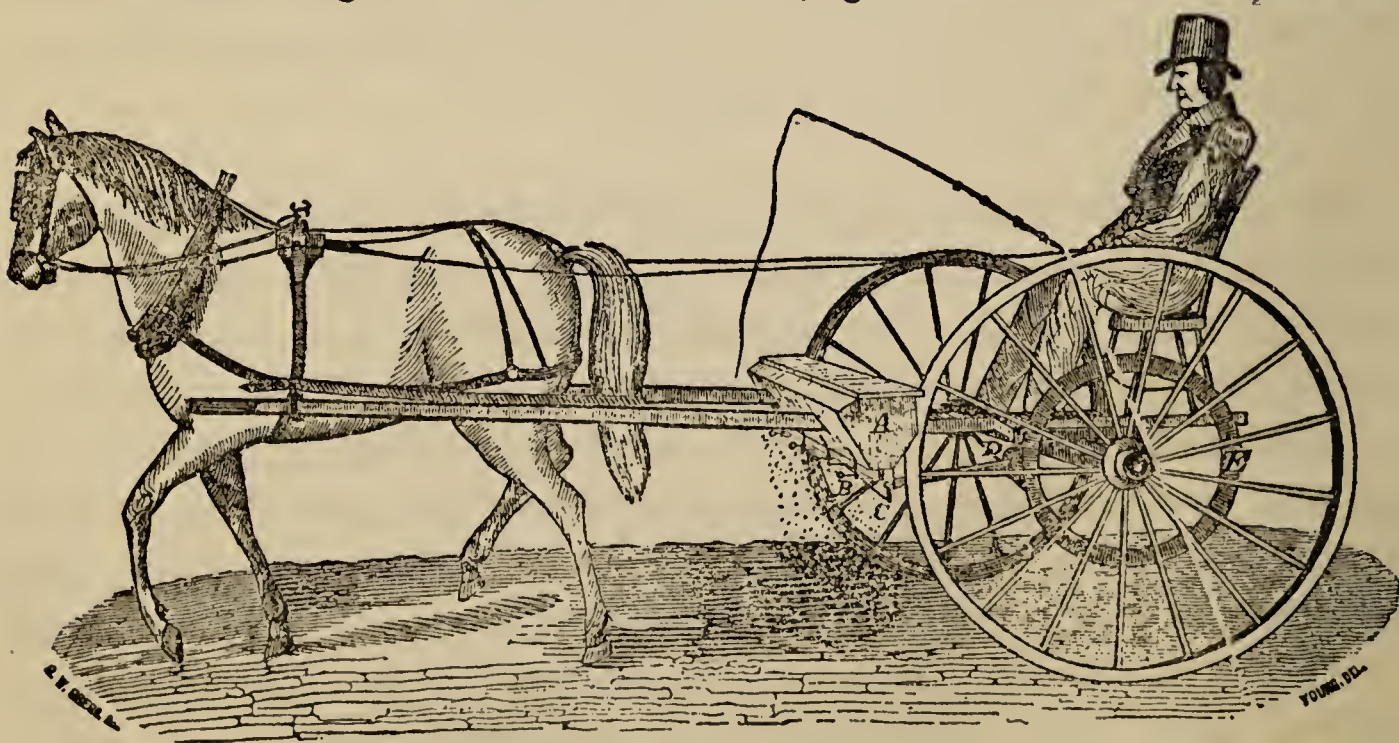


## A HISTORY OF AGRICULTURE

hammered out by the nearby blacksmith. It can hardly be said that this primitive harrow could compare in efficiency with the modern disk harrows and pulverizers, tractor-drawn, which break up a soil as well as a plow.

One passes naturally from the harrow to the cultivator, a tool which has evolved almost within the memory of men still living. The first cultivators were heavy, clumsy tools behind which the farmer walked, holding straight, stiff handles. Even this tool did not come into use until about the middle of the nineteenth century, after which the next step in improvement was the present-day horse-drawn walking cultivator. It was not until the eighties of the last century that the wheeled tool came into use and this implement is still subject to frequent changes. Corn and potatoes, the two crops that must be cultivated, received such tillage as they had in pre-cultivator days from crudely made shovel plows or a light mould-board plow.

A good many men must have had the idea that there was an easier way of sowing seed than by scattering it broadcast as the sowers of biblical times or first settlers in all times and in all places planted their grain crops. Patent after patent seems to have been taken out in the United States for seed drills and no doubt they had their forerunners in Europe. George Washington took a turn at making one but without very great success. Farmers did



HATCH'S SOWING MACHINE



## HUMAN LABOR DISPLACED BY MACHINERY

not have much confidence in seeders until well toward the middle of the eighteenth century when probably they were driven to using a machine by a scarcity of hand labor just before and during the Civil War. The first seed drill at all comparable to those in use at the present time was invented by Henry W. Smith, and put in use in the 1850's. Another popular grain drill was the Pennock, patented by Moses Pennock of Chester county, Pennsylvania. This machine was drawn by two horses and planted from 10 to 15 acres per day. But for the Civil War and competition with the wheat growers in the Mississippi Valley, the coming of the wheat drill would have been delayed for years longer than it was.

Washington, soon after his return to Mount Vernon at the close of the Revolution, invented a drill, which he called a "barrel plow." His invention consisted of a barrel of wood mounted upon a wheeled plow so arranged that as the plow moved forward the barrel turned. Holes were cut in the barrel through which the seeds dropped from tubes that ran into the ground, as do the tubes of modern seed drills. By increasing or decreasing the number of holes, grain could be planted thicker or thinner. Washington wrote to a friend that "the barrel would not work to good effect on any land that was full of stumps or stones, but where the ground is free from these and in good tilth, my barrel works well." In 1786, Washington set down in his all-recording diary, "Having fixed a roller to the tail of my barrel plow and a brush between it and the barrel, I sent it to the Muddy Hole Farm and sowed turnips between the rows of corn."

It was the West and its great corn fields that developed machinery for planting. Long after the Civil War most of the corn planted in New York and the northeast was dropped by hand and covered with a hoe. Some preferred to plow a furrow and drop the seed; or, a cheap, easy make-shift on newly cleared land, a common practice in pioneer days, was to thrust a spade in the soil, press forward and backward to widen the hole and drop the corn, or a similar hole might be made by an axe. Then followed the simple hand planter. A man with a hand planter would have hard work to put in more than two acres a day; the first horse machine planted eight or ten acres. Pictures in farm

papers show so many types of these early planters that space does not permit descriptions. There was the Billings, the Brown, the Cole, and the Randall and Jones, all drawn by horses, all illustrated in the farm papers before 1860 and all of which gave way to a score or more improved planters shortly after the Civil War.

Pliny the Elder, who lived in Christ's time and gives us full and accurate accounts of farming in all its details, describes a machine for reaping grain, although a search through Cato and Varro, grand old Roman farmers who lived three or four hundred years before Pliny, might show that they too had implements other than the sickle for reaping grain. Pliny's description reads as follows:

"The mode of getting in the harvest varies considerably. In the vast domains of the provinces of Gaul a large hollow frame, armed with teeth and supported on two wheels, is driven through the standing corn, the beasts being yoked behind it; the result being that the ears are torn off and fall within the frame. In other countries the stalks are cut with the sickle in the middle, and the ears are separated by the aid of paddle-forks."

This machine was in use for several centuries after Pliny wrote, for Palladius, author of fourteen books on agriculture, four centuries later, describes the same tool. Just when it went out of use does not appear. One sees at once from Pliny's description that such a reaper would be very wasteful except on level land.

The sickle and then the cradle were the implements that the American farmer depended upon to cut his grain from early colonial times until about the middle of the nineteenth century. The cradle seems to have been a tool that farmers required to be especially well made and upon which craftsmen acquired highest reputation. Van Wagenen describes the making of a cradle as follows:

"The production of a good grain cradle was a job calling for a very high degree of mechanical skill—an undertaking in which the mere 'wood-butcher' had no place. Long ago at Mineral Springs in Schoharie county, one Erskine Bouck made cradles by going into the woods where ash trees had been felled and digging out





GAELIC HEADER, DESCRIBED BY PLINY, A. D. 70







the entire stumps, from the buttressing roots of which he could split out pieces having the natural crook for the 'fingers.' Finally from his wonderfully skilled and patient hands came a cradle which for slenderness and toughness and lightness and elasticity and 'hang' was in its way as much of a triumph as a Stradivarius violin. Bouck cradles were known far and near and sold for \$5.00 in the day when this was deemed a large sum of money. I suppose there still survive scores of these masterpieces of this long dead artist in wood. Today when we buy a cradle, it costs only \$6.00 but it was made in a West Virginia factory with snath and fingers sawed from the log and steamed and bent into shape like a wagon fello—a heavy, awkward, ill-balanced, mis-begotten tool compared with those that came from the workbench of the master craftsman."

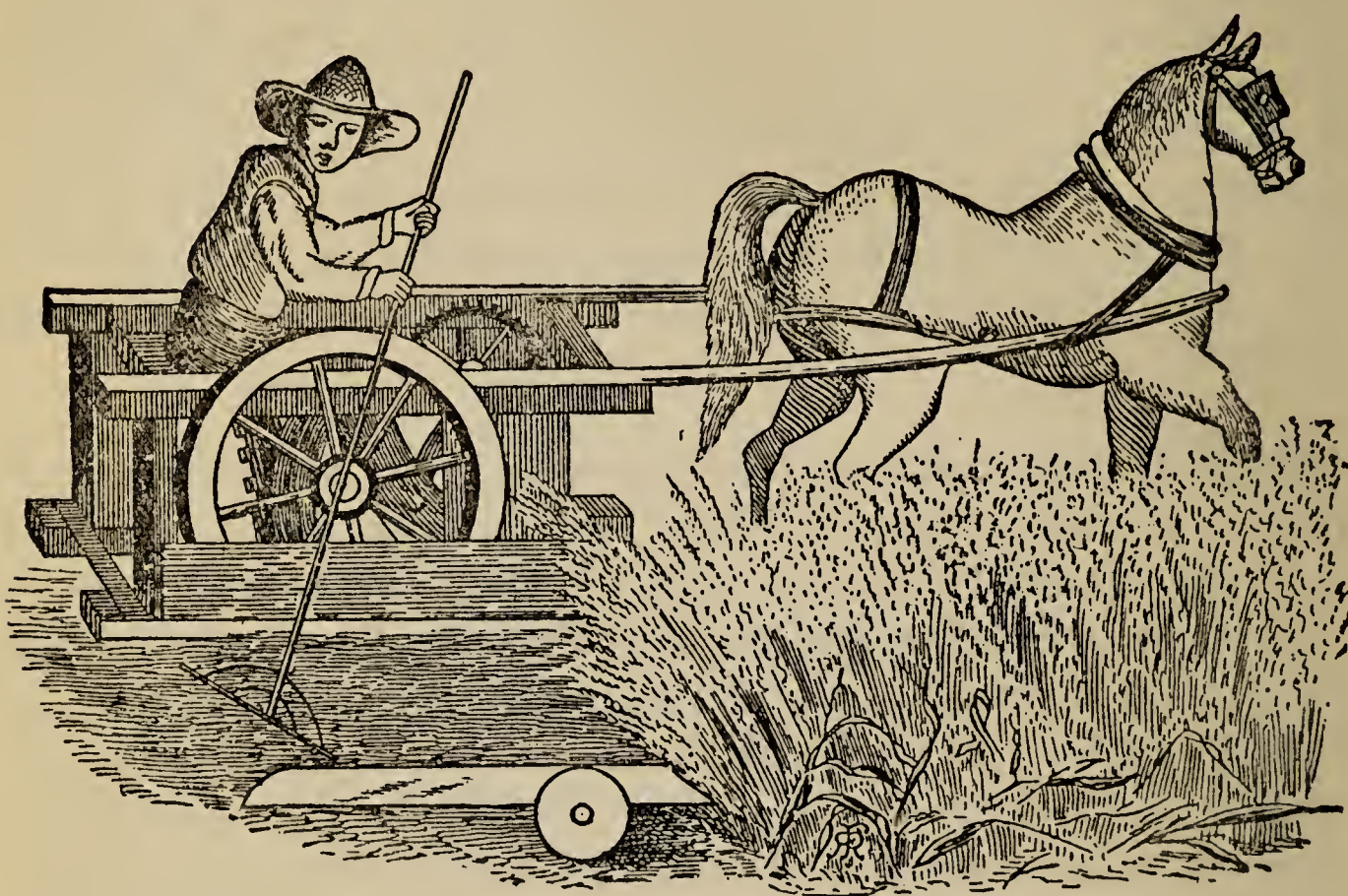
Joseph Boyce is usually credited with being the first man to patent a reaping machine. Boyce was an Englishman, and the patent was granted him July 4, 1799. His machine had a series of knives or cutters fastened to the lower end of a vertical spindle arranged on a wheel. The reaper was pushed forward from behind, which caused the spindle to revolve against the grain. Mention is made in the literature also of another mechanical reaper patented in England in 1800 by Robert Meares of Somersetshire. The English take credit for several other patents prior to the World's Fair held in England in 1851, when McCormick's and Hussey's American reapers were shown and in use convinced John Bull that Brother Jonathan had really produced an implement that would work without too much waste, wastefulness being the defect that condemned the English power harvesters.

As with the plow in America, there were several machines to cut grain patented in the United States before a really successful reaper came into use. Harvesting machines were patented by Richard French and John T. Hawkins of New Jersey in 1803, and between that time and the patent granted to Obed Hussey, of Baltimore, December 31, 1833, for the first practical reaper, the United States Patent Office had granted 16 other patents for harvesters. Cyrus H. McCormick, of Virginia, was granted a patent on a McCormick harvester June 21, 1834. These early reapers of Hussey and McCormick only cut the grain, leaving it



## A HISTORY OF AGRICULTURE

to be bound by hand. The Hussey machine was mounted on two large drive wheels with a platform to the right, on the front edge of which was the cutting apparatus. In operation, the grain fell on the platform until a sufficient amount had accumulated to make a bundle when it was raked from the rear. The machine required a man to drive the team, a man to push off the grain,

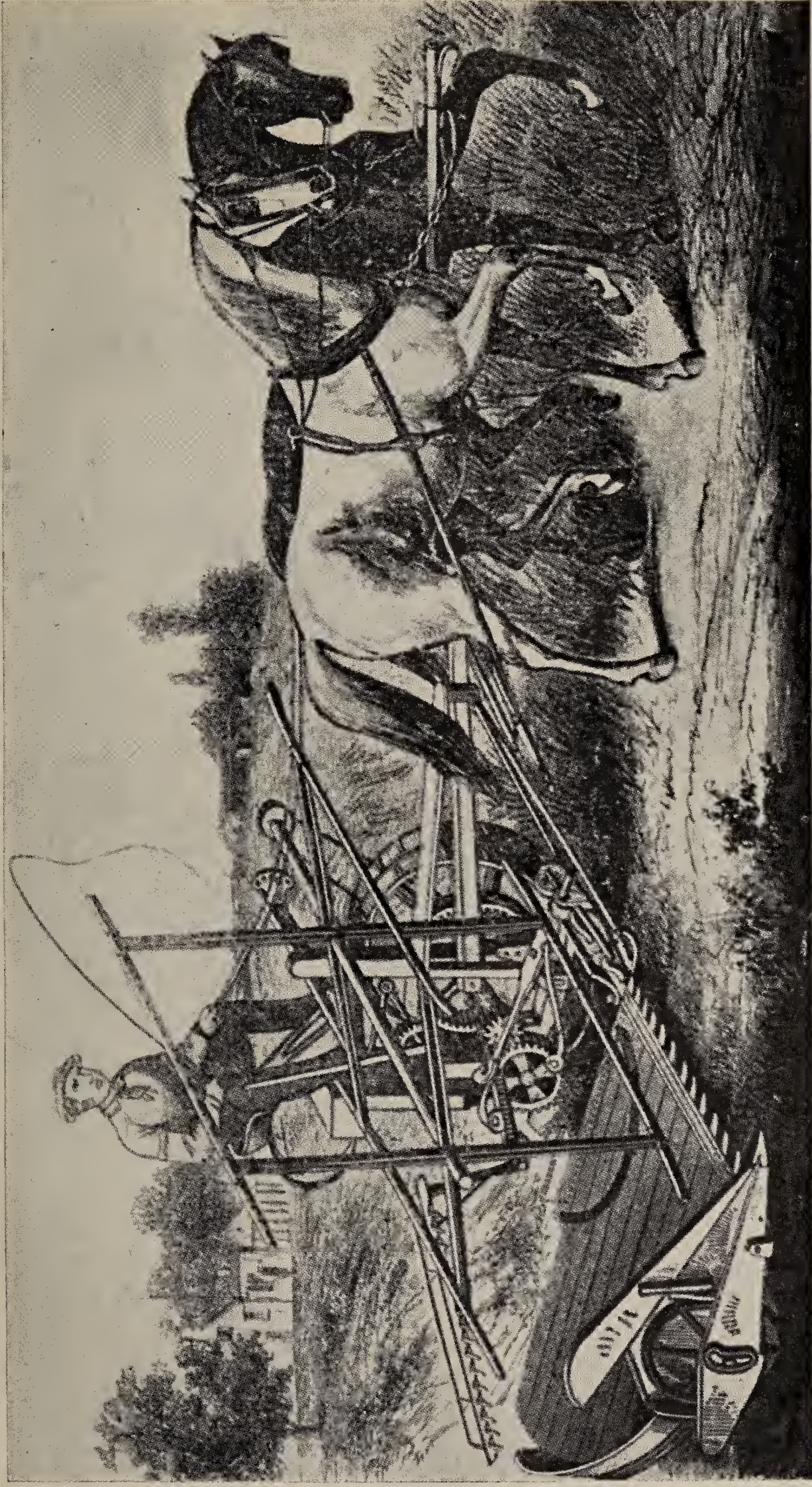


HUSSEY'S REAPER AT WORK

and from five to seven men to bind and shock the cut grain so that it would not be trampled on the succeeding round. Hussey's machine with its gang of men was supposed to cut from 12 to 20 acres per day.

McCormick's reaper was more complicated than Hussey's. The drive wheel was directly behind the horses and through a series of cogs gave a reciprocating motion to the cutting knives. Behind the knife was a platform five or six feet long from which the grain was raked by a man walking to the right of the reaper. Since the grain was raked from the side of the platform, it was not necessary as with Hussey's reaper to remove the cut grain before the next round of the machine. It took several years to bring these reapers into use. Up to 1840, grain was still cut with the cradle, and neither Hussey nor McCormick could sell their





AN EARLY FORM OF THE SELF-RAKE REAPER—THE NEW YORKER







## HUMAN LABOR DISPLACED BY MACHINERY

wares. Both machines were crude and imperfect, especially in the matter of applying power since horses must be kept on a fast walk or a trot before the reaper could be made to cut. Neither tool was of much account when grains were lodged, but beginning with 1840 improved harvesters came into use and by 1850 were common in the grain-producing regions of the country.

Although the reaping machine was not the invention of a New Yorker, many patents and many improvements have originated in New York. Auburn, New York, has from the first been a center for manufacturing reaping and mowing machines. Among the early grants of patents for harvesters, the names of several New Yorkers are outstanding. William A. Kirby and E. B. Forbush of Buffalo took out notable patents in improving grain and grass harvesters in 1852, and several others each in the years that followed. Their patents seem to have had mostly to do with the cutting apparatus and the seat for the driver so that his weight added to the wheel would give adhesion to the ground and so help drive the cutters. The Forbush and Kirby machines were manufactured in Buffalo, but in 1858 the firm of D. M. Osborne and Company, now the Auburn plant of the International Harvester Company, was formed, and from then until the present has been the chief manufacturing seat of harvesting machines in the United States. The click of Auburn manufactured reapers may be heard now in the harvests of the world every day in the year. The crowning glory of farm-tool inventions in America is the reaper, in the improvement of which New Yorkers have had a fair share.

The early users of farm machinery had great difficulty in determining what the best makes of the several machines were. Soon there came in vogue local, state, national and international competitions. There are many accounts of these trials of plows, reapers, mowers, and other farm machinery. Of those in hand there is a very full account of a trial held by the New York State Agricultural Society at Geneva, New York, in 1852 to test reapers and mowers. Nine machines and seven mowers were in the competition. Few of the reapers did good work; nearly all left the stubble uneven; frequent delays resulted from the breaking of parts and the clogging of the cutter bar; the draught on all was very heavy; and some had an awkward side draught which

made hard work for horses. Only two of the reapers had self-rake attachments. Yet even at this early date and in the imperfect form of the machines, the judges decided that there was a saving of  $88\frac{3}{4}$  cents per acre in the use of a machine over cutting with a cradle. Only two or three of the mowers equalled the scythe in the quality of work performed, but at the close of the trial the judges reported "the excellence discernible in the best mowing machines now exhibited leaves no doubt as to their utility." Five years later, the United States Agricultural Society held a national trial at Syracuse, New York. Forty-odd mowers and reapers under competition showed that in these few years striking improvements had been made since the trials at Geneva. The reaper was declared a reliable machine and its adoption was recommended.

The use of all farm implements was greatly stimulated in the nineteenth century by exhibits at the World's Fairs in London in 1851 and in Paris in 1855. In the official report of the fair at London it was said, "The triumph of the American reaper worked a new era in agriculture." At the Paris exhibition, where trials of mowers, reapers, and threshing machines were made, a correspondent of the *New York Tribune* reported:

"Six men were set to threshing with flails at the same moment that the different machines commenced operations, and the following were the results of half an hour's work:

Six threshers with flails.....	60 liters of wheat
Belgian thresher .....	150 liters of wheat
French thresher .....	250 liters of wheat
English thresher .....	410 liters of wheat
American thresher .....	740 liters of wheat"

In the trial of reapers, the following was the result in a field of oats: "An Algerian machine cut an acre in 72 minutes; an English machine in 66 minutes; and an American in 22 minutes."

Improved reapers now appeared in rapid succession. In the late fifties, the twine binder came into use and soon after 1860 all reapers were self-raking and self-binding. The twine binder is an important milestone in agricultural economics. An auto-



## HUMAN LABOR DISPLACED BY MACHINERY

matic machine that could cut and gather a sheaf of grain, tie it with a bit of string, and then toss it aside made possible an expansion of grain production such as could not otherwise have taken place. To follow the progress of reapers from the twine binder down to the great combined headers and threshers in use in the grain fields of the far west at the present time would require a volume, and no small one, a task, too, out of the field of this account, since New York grain growers still use the simple self-binder.

The development of the grass mower paralleled that of the reaper. In fact, early mowers and reapers were usually made interchangeable. In most of the early reapers, the platform at the rear of the cutting bar could be removed and the machine thus



THE WHEELER MOWER OF 1860

transformed into a mower. The defects of early mowers were those set forth for early reapers, with the additional one that the first mowing machines did not cut sufficiently close to the ground nor smoothly enough when the surface of the land was rough. The driver it seems had to leave his seat at every corner to avoid



## A HISTORY OF AGRICULTURE

tearing up the sod and the knives clogged in fine grass. At the test of the New York Agricultural Society held in Geneva in 1852 these and still another more serious defect were noted, to wit, that "when brought to a stand in the grass the mowers to start again must back up to get speed." In 1856, Cyrenus Wheeler, Poplar Ridge, Cayuga county, New York, patented a mowing machine quite distinct from the reaper. Wheeler's mower was two-wheeled and had a flexible cutter-bar. From this time on the evolution of mowers and reapers followed different paths. With the appearance of the Buckeye mower in 1856 and the Wood in 1859, mowing machines began to be practical.

One of the most progressive farmers in New York in the 1850's was John Johnson, the Scotchman who introduced tile draining in the New World. In 1858, Johnson wrote an interesting account of mowing machines for the *Country Gentleman* in which he set forth their advantage over the scythe. He said:

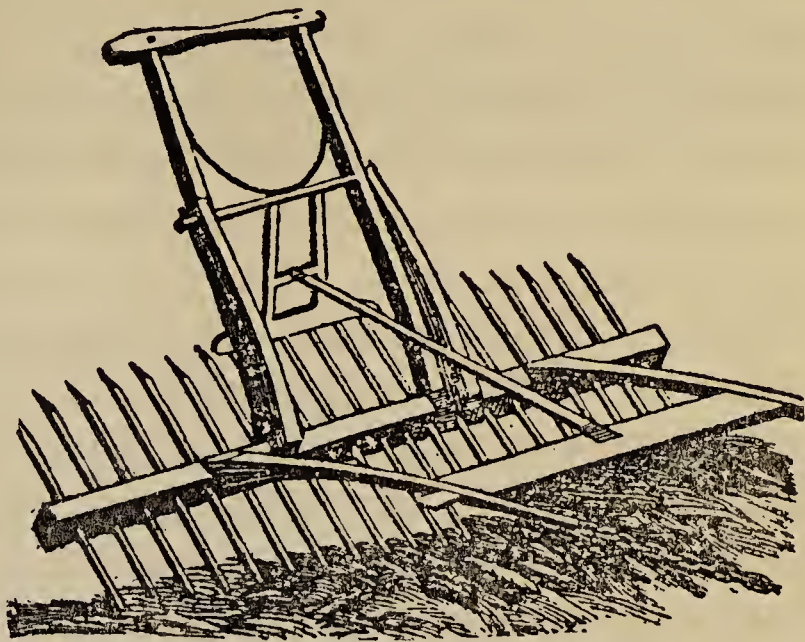
"In the first place, in this section of the country, for several years past, no good mowers could be hired for less than \$1.50 per day and board, and I never saw five mowers together that would average over one acre each, daily, and seldom that where the acre would yield two tons of dry hay, and if cut as close and even as the machines, not near that. For years before we had mowing machines, I often let my mowing by the acre, and paid from \$1.25 to \$1.50, beside board. Now I could get any quantity I ever had or ever will have to cut, done for 62½ cents per acre by horses, and they will cut ten acres per day. The difference of board of ten men in place of one man and one pair of horses, is no small item. But we can cut our grass at much less expense with our own machines and horses, than to hire it done at 62½ cents per acre, as any smart boy, or lazy farmer, or old man, can drive the horses, and that is all he has got to do; and farmer's horses would generally be idle when he is toiling at cutting down his grass."

One form and another of a horse rake for hay came into use early in the eighteenth century and quickly superseded the old hand rake. These first inventions were simple indeed, the construction consisting of perhaps a score of wooden teeth projecting from both sides of a head-piece. The horse was fixed to the head-



## HUMAN LABOR DISPLACED BY MACHINERY

piece with ropes. The rake was guided by two handles. The teeth were flat on the ground and passed under and collected the hay. When full the rake was flopped over, emptied, and lifted over the windrows for another load. This simple device worked only on level, well-tilled land, and in rough or small fields hand rakes must still be used. Yet the "flop-over" rake is often accorded a place as one of the most helpful inventions among farm tools. It attained almost universal use in American hay fields and lingered long after the



REVOLVING HORSE RAKE

wheel horse rake was common. Imperfect as this first rake was, it was said that from two to three acres of hay could be raked with a machine in an hour and that one man with a horse could do the work of five or six men working by hand. The wheel horse-rake with iron or steel teeth came into use in the fifties, and very soon took the familiar form that all adults of the present generation remember.

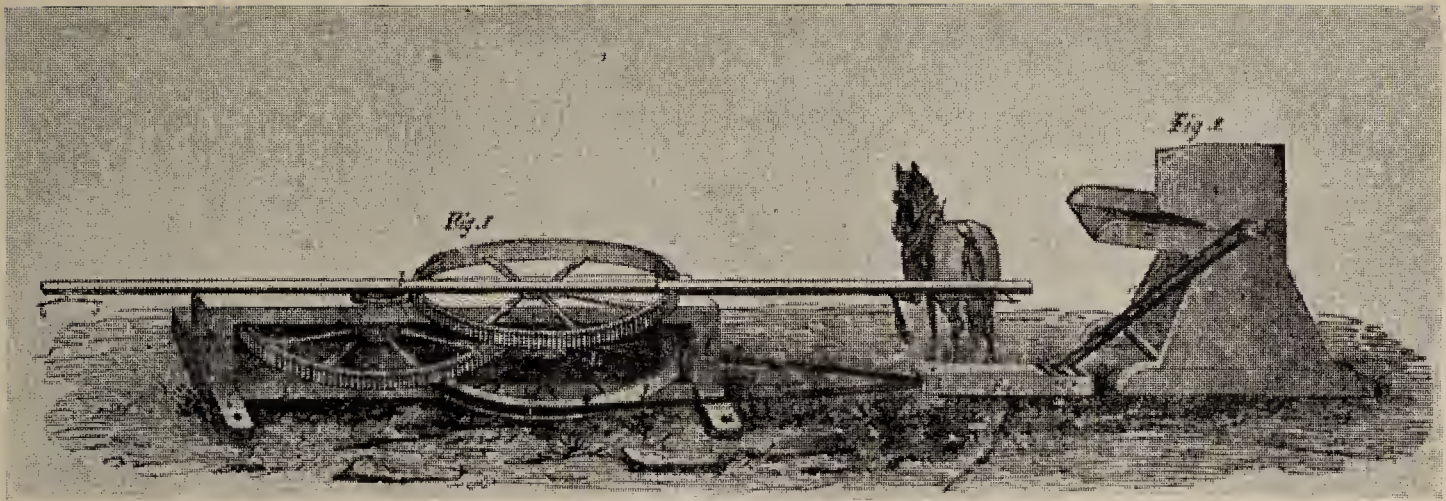
The ancient rite of threshing was mostly performed by trampling the grain with animals—oxen, asses, or other beasts of burden—but Americans early substituted the flail, although beasts were more or less in use until threshing machines were invented. The flail in its day was a more efficient means of separating grain from straw than animals. It was a cheaply made home contrivance. Another advantage of the flail was that it gave employment in early winter to farm labor. Trampling out with farm animals left the straw in poor condition for the dozen or more uses to which straw was put on farms a hundred years ago, such as paper-making, thatching, and for straw hats. The flail need not be described. Everyone has seen this simple tool preserved as a farm relic, and no doubt most farmers have tried to demonstrate

its use to the amusement of onlookers, since the operation of flailing requires a knack, either natural or acquired only after considerable experience. From the flail to the threshing machine required a marked change in the farmers' work-a-day clothes. A threshing machine with its wheels and belts makes necessary a tight fitting costume for those who work about it. Overalls, wamus, red handkerchief about the neck, a slouch hat pulled down to shade eyes and ears, are tokens of the threshing crew at once recognized by those who live on farms. But when grain was flailed, its wielder wore a long duster-like frock, now for a hundred years out of fashion but to be seen depicted in the early nineteenth century prints. Probably no one can say how long a flail has been used in threshing grain. Theophrastus, the Greek, 800 years B. C., Cato, Varro, Pliny, all of the old Roman writers on husbandry, mention the flail. A flail is so exceedingly simple in construction that it must have been put in use almost at the beginning of grain growing.

Washington grew great quantities of grain and was alert for better methods of threshing. In 1797, he built a threshing machine on plans evolved by one Wm. Booker who came to Mount Vernon to oversee the construction. The next April he wrote to Booker to say that the machine "has by no means answered your expectations or mine." At first, Washington's thresher turned out not quite 50 bushels of wheat per day; then its efficiency fell to less than 25 bushels; after which it seems to have gone from bad to worse, and in the two or three weeks that Washington was trying it out he managed to thresh only about 500 bushels of wheat. Meanwhile it used up two bands, "costing 8 pounds each." This was another occasion on which Washington is said to have lost his temper and to have sworn lustily.

The first threshing machine made its appearance about 1825. This implement, wonderful in the eyes of its first users, consisted of a power machine of four horse-power and a cylinder. The cylinder was placed seven feet above the barn floor so that the threshed grain and straw had space in which to fall. The straw was raked off the heap of grain and given a toss. A second man gave it another toss toward the door of the barn, and a third forked it up, shook it vigorously and threw it into the barnyard





THE EVOLUTION OF THE THRESHER







## HUMAN LABOR DISPLACED BY MACHINERY

to be stacked. This primitive thresher was followed about 1840 by an implement with a moving separator, but still lacking a straw carrier. The first straw carrier received its power from a man who turned a crank as with a grindstone. About 1850 the carrier was attached to the separator.

These early horse-power threshing machines were loaded in a wagon and moved from place to place. The cost of early machines was in their favor, since a very good one could be purchased for as low as \$75.00, with a guarantee that the thresher would turn out from 120 to 300 bushels of oats in a day. The first contrivances did not winnow the grain, but in 1834, H. A. Pitt, of Winthrop, Maine, patented a combined thresher and fanning mill. In 1840, Pitt moved to Albany and began the manufacture of threshers. Pitt's machine weighed somewhat less than 1,000 pounds, was eight or ten feet in length by two feet, four inches, in width; power was supplied by three or four teams attached to sweeps. It threshed about 25 bushels of wheat an hour. The crew consisted of four men, one to pitch the bundles, one to feed, one to put the grain in bags, and one to remove the straw. Evolution of the thresher now took place rapidly. Larger machines, more efficient cylinders, combined fanning mill, straw carriers, the steam engine for horse power, were all improvements that came one after the other. The first threshing machines were small, but miniatures of those that followed with a trend toward the largest possible size that could be taken over country roads. Now the trend is the other way, toward small separators much more efficient with gasoline power and more easily and quickly transported through the threshing circuit than were the large machines of 30 or 40 years ago.

The threshing crew deserves a word. In the first days the crew was small and usually consisted of three men and two teams of horses, simple horse power which required four or six teams of horses which circled about a central machine the livelong day to the accompaniment of the drivers' oaths, humor, or pleading as the case might be. Another man with his team drew the thresher from place to place after which the driver acted as feeder to the cylinders. A third man kept an eye on the threshers and on the threshed grain as it poured into the measuring boxes. When horse

power was changed to steam power the drivers gave way to the engineer and additional men were added to the crew. Always a threshing crew was a genial, humorous, picturesque lot, known far and wide for the eccentricities of its individuals.

Nearly all farming implements for the several fundamental operations on the farm were invented and introduced before the Civil War. But it was war time conditions that brought them into common use. Farmers, north and south, enlisted or were drafted into the army or were put to work on the railroads then building and in gun and munition factories. Only the old and young, with the women folk, were left to carry on the farming. This scarcity of labor greatly stimulated the use of farm machinery. The new plows, improved harrows, two-horse cultivators, horse-drawn corn planters, mowers, reapers, and threshing machines quickly came into use in the Civil War period and overcame the conservative farmer who had the alternative of planting and caring for small crops or making greater use of all the inventions in farm machinery. What farmer in that period of high prices for grain would not use a team-drawn reaper which cut 10 or 12 acres of grain in a day when the hired man with the cradle was hard put to it to lay down two acres?

These few pages on inventions and farm tools are wholly inadequate to inform or even remind the reader of the boundless expansion and accumulation of wealth that came to the country in the nineteenth century through inventions. Of those that affected the farmer directly, we have given but a fragmentary account. Space forbids more than a word of reminder of hay-tedders, corn-shellors, root-cutters, cidermills, ditching machines, rollers, corn-cutters, fanning mills, hand tools, churns, harnesses, saws, reels, washing machines, millstones, pumps, saddles, fence-wire, sewing machines, steam cookers, and what-not. In 1850, the annual number of patents taken out was about one thousand, but in 1860 the patent office issued 4,778 patents, a very large proportion of which had some connection with the farm.



## CHAPTER XV

### THE PRINTING PRESS AND THE FARMER

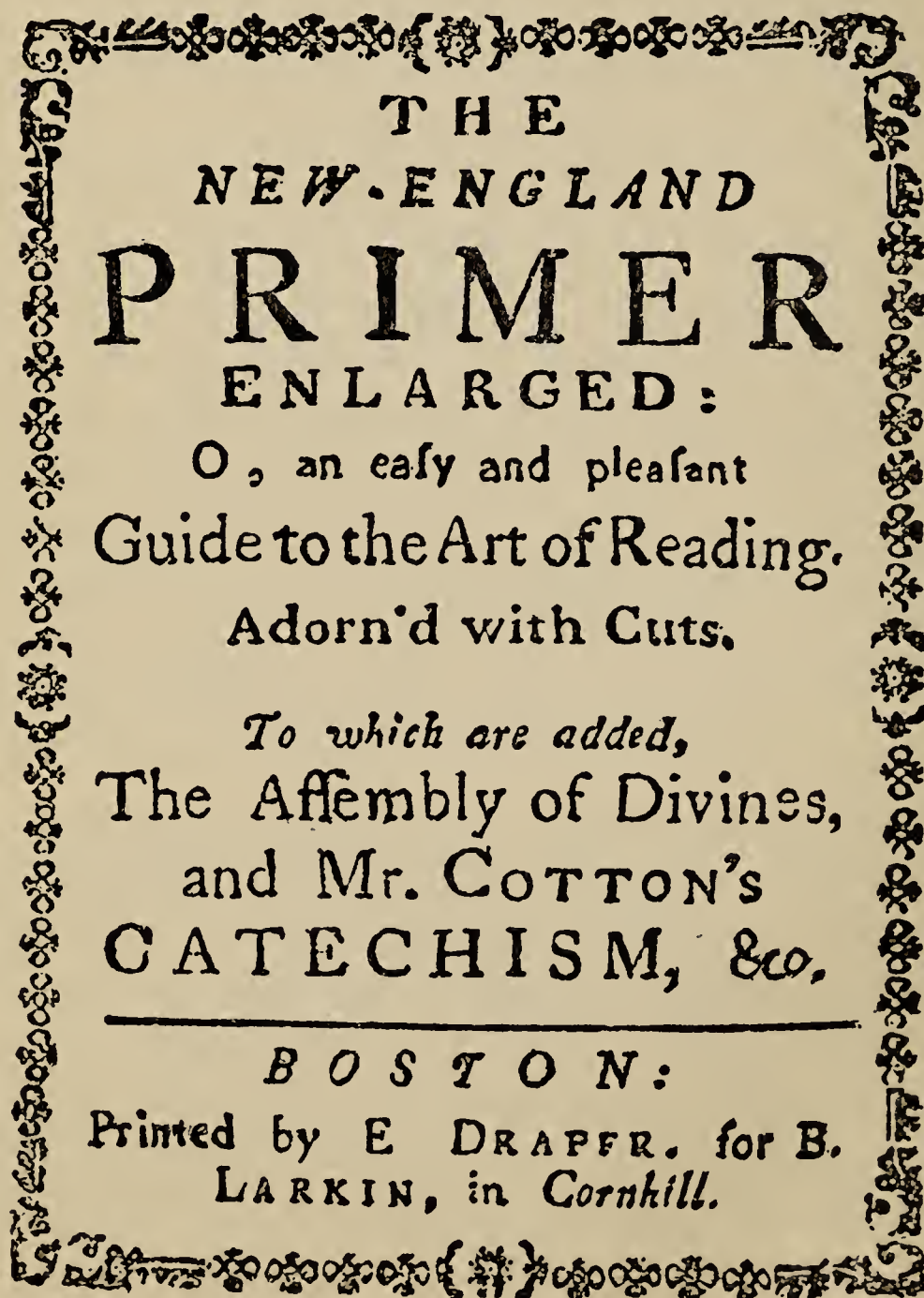
G OVERNOR BERKELEY "thanked God there were no printing presses or free schools in Virginia and hoped there would not be for a hundred years." Berkeley explained that he was afraid that "printers would be too censorious of their superiors." Evidently the companies and authorities establishing the Province of New York were of the same opinion as the royal executive in Virginia, for Governor Dongan, early governor of the Colony, was instructed in 1685 "to allow no printing press in the province." During the reign of the Dutch, there was no printing in New Netherland, and means of dissemination of news and opportunities for acquiring education were frowned upon or suppressed by the Dutch governors. William Bradford was the first publisher in the Province of New York. He became official printer for the provincial government in 1693 for "forty pounds a year and half the benefit of his printing, besides what served the public." In 1694, he printed the *Laws of the Colony*, the first bound book published in New York. It was not until October 16, 1725, that a newspaper came out in the Province. A good copy of either would now be worth its weight in gold.

But meanwhile there was some printing being done in New England. The *Bay Psalm-book* and the *Eliot Indian Bible* were early titles, the publishing of which, however, had little or no influence outside of New England. Another book saw the light of day in New England in these early years, however, which profoundly influenced the education of all youth in the colonies north of Virginia. In the autumn of 1683 John Gaine deposited with the Stationers Company in London a book called *The New England Primer or Milk for Babes*. The edition must have been small and quickly exhausted for a year and a half later no copies were available and in the quarter-millennium that has elapsed not

## A HISTORY OF AGRICULTURE

a single copy has come to light. In 1686, Benjamin Harris, an English printer, emigrated to Boston, and sometime between that date and 1690 published the earliest native *New England Primer*. The book ran through many New England editions and soon was being published under imprints of New York and Philadelphia. It has been estimated that in the century and a half that elapsed between the earliest issues of the *New England Primer* and the dawn of the railroad era more than six million copies of this guide to little minds and souls were printed.

In colonial days of ample families and frugal book budgets, it is probable that there were oftener a half dozen readers than a single one for the *New England Primer*, so that several millions



TITLE PAGE OF THE NEW ENGLAND PRIMER



## THE PRINTING PRESS AND THE FARMER

of the youth of the land, for more than a century, were taught to read and learned their morals from this early textbook. In this country, or any other country for that matter, few other school-books are so richly deserving commemoration. The tone of the primer is deeply religious, and 16 of the 24 pictures illustrating the couplets and rhymes represent biblical incidents. Thus are illustrated:

In Adam's Fall  
We sinned all.

Heaven to find,  
The Bible Mind.

Christ crucify'd  
For sinners dy'd.

The Deluge drown'd  
The Earth around.

Elijah hid  
By Ravens fed.

How many youngsters studying the primer were thrilled with the tree-climbing prowess of Zaccheus?

"Zaccheus, he  
Did climb a tree  
His Lord to see."

Or looked breathlessly at the rude cut of Rogers lashed to the stake, the flames burning fiercely while the martyr discoursed to his wife and nine small children. The primer contains 12 words of five syllables, five of which are abomination, edification, humiliation, mortification, and purification—words which give tone to the whole of the little book. Half of the primer is made up of the Lord's Prayer, the catechism, and Watt's Hymns. One John Cotton contributed "Spiritual Milk for American Babes." There is a dialogue between Christ, Youth, and the Devil as an epilogue. The book contains much for the proper bringing-up of youth of a moral as well as of a religious nature. Its readers are exhorted not to cheat at play, not to lie, not to use ill words, not to call ill

## A HISTORY OF AGRICULTURE

names, not to be a dunce, and to love school. Thus were the children of colonial days led over the rough path to learning.

The youth of a little later day had Noah Webster's spelling book substituted for the *New England Primer*. Noah Webster, while a teacher in Goshen, New York, published *A Grammatical Institute of the English Language*. The book was printed in Hart-



N  
Nightingales sing,  
In time of spring.

O  
The royal Oak, it was the  
tree,  
That saved his royal ma-  
jesty.

P  
Peter denies  
His Lord, and cries.

Q  
Queen Esther comes  
In royal state,  
To save the Jews  
From dismal fate.

R  
Rachel doth mourn,  
For her first born.

S  
Samuel anoints,  
Whom God appoints.

B

A PAGE FROM THE NEW ENGLAND PRIMER

ford in 1783–85. It appeared in three parts, a spelling book, a grammar, and a reader. Of the three, the spelling book was the most popular, and it is said that more than 62,000,000 copies were published between the date of its appearance and 1880, at which time it was still commonly used in the rural schools of the whole nation. Webster, the reader need hardly be reminded, has



## THE PRINTING PRESS AND THE FARMER

other claims for the gratitude of American students of the mother tongue. In 1807, he published *A Philosophical and Practical Grammar of the English Language*. The book was so technical that it never became popular. But out of it, together with the publication of a vocabulary of words not contained in any other lexicon, grew Webster's *American Dictionary of the English Language*. Webster is said to have worked 20 years on his dictionary, subsisting the while on the royalties of one cent per copy on his spelling book. The manuscript was finished in 1825, but the book did not come out until 1828, when an edition of 2,500 copies was printed. The first edition contained 12,000 words, but in 1840 a second edition of 40,000 words with definitions came from the press. Since that time, Webster's dictionary has appeared in edition after edition, in each successive one of which the number of words is increased. The latest edition, 1928, contains more than 400,000 words. Noah Webster's spelling book and dictionary have been working tools in schools, homes, and offices and have perhaps had greater influence in educating American people than any other printed agencies.

A third educational output of the printing press was the almanac. News and much besides came to youth and adults from the almanacs printed from 1750 to 1850. In most farmers' homes the almanac took the place of the newspaper and served the purpose fairly well. Examine the almanacs included between the two dates given and you will find that they have all the value of contemporaneous documents, whether printed in books or newspapers. The maker of almanacs wrote for the immediate present, knowing that each year's successor would relegate the issue in hand to waste paper. In particular, almanacs were prepared for farmers. They contained a calendar without which no farmer could conduct his business; occupations appropriate for the several seasons were set forth for the farmer at some length and often as most helpful reminders; sacred and secular festivals were accounted for; simple astronomical facts gave the reader a smattering of what went as science when almanacs were in their prime; the wise and witty sayings, the jokes and stories must have been wholesome corrective spice to the sanctimonious, sober,

printed matter that comprised American literature from the *Bay Psalm-book* to, say, the dime novel, Josh Billings, and Mark Twain.

The first American almanac was probably that of William Pierce of Cambridge, published in 1639, although some ascribe the honor to Bradford's Press, in Philadelphia, in the year 1687. The most famous American almanac was *Poor Richard's Almanac*, launched in 1732 by Benjamin Franklin under the pseudonym of Richard Saunders, published in Philadelphia with a run of 25 years. Thomas, of Boston, Massachusetts, published *The Farmer's Almanack* for 54 years, beginning in 1793, and continued by others down into the twentieth century. Probably no other of the many American almanacs enjoyed so great popularity as *The Farmer's Almanac*, although in its first issues at least its imitation of *Poor Richard's Almanac* was patent. The *American Almanac and Repository of Useful Knowledge* was another notable publication of the kind, printed in Boston from 1828 to 1861. Toward the end of the nineteenth century several large newspapers in the United States began the publication of almanacs which are marvels of condensed information, despite which they are probably nowhere as popular nor perhaps as useful to the masses of people as were their predecessors of three and four generations ago.

As an example of directions for work, appropriate to the successive days of the month, take this from Thomas' *Farmer's Almanack* for December, 1796:

"Very little can be done on a farm this month to much profit.

"Lay in dry fuel, while the snow keeps off.

"Prepare and put in order, your sleds and sleighs as they will come in use very soon.

"Look well to your barns and fattening herds.—'Live temperately, and spend frugally.'

"The cultivation of the earth, ought ever to be esteemed, as the most useful and necessary employment in life. The food, and raiment, by which all other orders of men are supported, are derived from the earth. Agriculture is of consequence; the art which supports, supplies, and maintains all the rest.

"Remember, ye wealthy and affluent, the sons and daughters of affliction and distress! Think of those, into whose shattered dwell-



No. XVIII.

THE  
FARMER'S ALMANACK,

CALCULATED ON A NEW AND IMPROVED PLAN,  
FOR THE YEAR OF OUR LORD,

1810.

Being the Second after BISSEXTILE or LEAP-YEAR, and Thirty-fourth of the *INDEPENDENCE* of *AMERICA*.

*Fitted to the Town of BOSTON, but will serve for any of the adjoining States.*

Containing, besides the large number of Astronomical Calculations, and the Farmer's Calendar for every month in the year, as great a variety as any other Almanack, of

*New, Useful, and Entertaining Matter.*

BY ROBERT B. THOMAS.



THOU great first cause, thy hand divine did raise  
This solid Earth, and spread the flowing seas;  
Did make the Sun in central glory shine,  
And every planet round his orb incline;

**BOSTON:**—Printed for JOHN WEST & Co.

Proprietors of the Copy-Right;

And for sale at their Bookstore, No. 75, Cornhill, and by most other Booksellers in *Boston, Salem, Newburyport, &c.* by the *AUTHOR* in *West Boston*, and by other Booksellers and Traders in *New-England*.

Price 9 dollars per gross, 87½ cents per dozen, and 12½ cents single.

E. G. HOUSE, Printer, No. 5, Court Street.

TITLE PAGE OF A FARMER'S ALMANACK FOR 1810



ings poverty enters to increase the inclemency and the horrors of the present season. Distribute bread to the hungry, and clothes to the naked. Discharge all the debts you have contracted the last year, with mechanics, shopkeepers, labourers, &c before a new year commences."

In a good many of the almanacs published in the early part of the nineteenth century there were very useful memoranda of farm, orchard, and garden work to be done, such as fertilizing, rotating crops, sowing seeds, harvesting, and so on. One of the best of these was *Poor Will's Almanac*, printed in Philadelphia in 1786. In the 1830's and 1840's it was somewhat the fashion for nurserymen and seedsmen to publish almanacs giving orchard and garden information. Several of these were printed in Rochester by various firms. The runs of such almanacs were never long, and they were shortly superseded by illustrated catalogs which took over the task of giving pomological and horticultural information. Much more might be said of the value of these seedsmen's and nurserymen's catalogs, but their development came later and has reached its climax in the memory of all middle-aged men.

After printing presses became common, and country newspapers, farm magazines, and books began to appear, the almanacs for most part began to fall into poorer hands. They shrank in size, were badly printed, and mostly appeared as patent-medicine pamphlets. Who among the older ones of us do not remember the patent-medicine almanacs, each with a loop of string in the upper back-strip corner, hung in a convenient place in the kitchen? The favorite color of the almanac for some reason or other was blue; green came next, and then yellow—seldom a red-backed almanac. All the later ones, at least, had this in common; on the front cover was the picture of a man, the face of a martyr, his internal organs opened to the light of day. Lines radiated from the middle of the abdomen to the signs of the zodiac, over which most possessors of almanacs puzzled without enlightenment, this bit of mystery enhancing the value of the book. These advertising pamphlets lay in heaps in January and February on the counters of drugstores, and were to be had without even the cost of asking. Always they served to advertise this or that bitters, pectoral, oil, salve, or tonic.



The calendar pages remained much the same as in the old almanacs, but the advice to farmers, the concise aphorisms, the fables, the stories, had mostly disappeared, and in their place were pages telling of the pains of human kind, testimonials with signatures and addresses of people who had been miraculously cured by the medicine advertised, and pictures of hollow cheeked men or women under which was the legend "before taking" and the same person, plump and hearty, "after taking." Testimonials from clergymen and women were always given prominence, which, perhaps, led to a saying attributed to Oliver Wendell Holmes: "Quacks, these days, are supported by the testimonials of clergymen and the gossip of women." Sometimes the later day almanacs presented cures for the ills of farm animals—for bots, spasms, heaves, and what not. The aphorisms of the older almanacs in the manner of Poor Richard, in the later publications were supplanted by jokes and stories. Still among those brought up on a farm, who can say that he is not indebted somewhat for his education to almanacs?

The cost of books has come down from generation to generation. Paper, once scarce and poor in quality, has become less and less expensive and better and better in quality. Printing machinery has cut the price of printing time after time, as the years have passed, until the rotary press and the linotype have reduced the cost and improved the quality a hundred-fold over the cost when printing was done by hand presses and type set by illiterate and unskilled workers. Transportation, postage, and the distribution of books and papers all cost fabulous prices a few generations ago in comparison with those now paid. One marvels that there were as many and as good books as there are to be found in the garrets of farmhouses whose publication dates back a hundred years or thereabouts. From these garret collections, and from the bibliographies and historical accounts of farmers' lives, one gets a pretty good idea of the farmer's reading in any past period.

Books found in homes of farmers in the period when they began to buy books were read as a duty and not a recreation. In a farmer's library, say in 1800, some and often all of the following titles would usually be found: *The Bible*, *Pilgrim's Progress*,

## A HISTORY OF AGRICULTURE

Baxter's *Saints' Everlasting Rest*, Fox's *The Lives of the Martyrs*, *The Dreadful Effects of Popery*, Watt's *Improvement of the Mind*, and now and then some book of poetry as Ossian's poems,

**N**OTICES on the Sugar Beet, containing a description of the culture and preservation of the plant; also explanations of the process of extracting its Sugar. Price 25 cts.

A Manual of the art of making and refining sugar from Beets. Price 75 cents.

Cobb's Manual on the Culture of Silk.

Chaptal's Agricultural Chemistry.

The Complete Farmer, by Fessenden.

Fessenden's American Gardener.

A Guide to Orchardists.

Smith's Treatise on the Honey Bee.

A Treatise on Cattle.

Mason's Farriery.

Barnum's American Farriery.

Vols. 1st and 4th, *Genesee Farmer*, bound.

For sale by D. HOYT,  
Rochester, May 26, 1838. Bookseller, 6 State st.

Young's *Night Thoughts*, and Thomson's *The Seasons*. An exotic taste for history was supplied by Rolins' *Ancient History*, and the taste for *belles-lettres* by the *Letters of Junius* and *The Spectator*. All of these have come down to us in second-hand book-stores in such numbers

and so well thumbed that we cannot but conclude that they were popular in their day. Political pamphlets, lampoons, such as Cobbett's *Porcupine Papers*, and attacks by innumerable clergymen on Paine's *Age of Reason*, together with sermons by outstanding doctors of divinity, were sold or handed about by their authors in these times. Enormous numbers of goody-goody books were supplied children by the Sunday schools which began to be organized about 1825. It was at this time too that gift books made their appearance. These were annuals, published under such names as *Religious Souvenir*, *Friendship's Offering*, *Literary Souvenirs*, *The Token*, *The Dew-drop*, *The Magnolia*, *The Gem*, and *The Floral Wreath*. Books from the attic of any well-to-do farmer of that period will contain one or several gift books, the most popular Christmas and birthday presents of the time. For most part, the contents were stilted commonplaces in prose and poetry, but in them are to be found many offerings from America's great galaxy of writers: Poe, Bryant, Whittier, Cooper, Hawthorne, Longfellow, Lowell, and Whitman, all of whom saw some of their first and best efforts in the pages of these annuals. Many of the gift books were illustrated by good prints from copper and steel which were at this time beginning to supplant the old wood-cut. It would be hard indeed to overestimate the influence that these



serials, some of them remarkably beautiful in binding, illustrations, and printing, exercised on the people three and four generations ago. As a dash of seasoning to the great mass of sanctimonious writings offered in abundance to youngsters who wished to read, there was in this period Washington Irving, Fenimore Cooper, Sir Walter Scott, and a little later Dickens and Thackeray, whose books became at once immensely popular on this side of the Atlantic.

The newspaper, as a popular means of information, and a bond in community life, hardly began to find a place in rural communities until the middle of the nineteenth century, perhaps a little before. Certainly by the middle of the century the printing office had begun to take a place as a luminous center in the country villages of the State quite as important as the schoolhouse and the church. From this time on, until rural delivery began to distribute the great city dailies, the country newspaper was the sponsor of every thought and movement looking toward the building up of the community. The first newspapers, as we look through their pages now, seem poor things indeed. They contained little that entitled them to be called "newspapers." Column after column was reprinted from distant or foreign papers and magazines, the editor aspiring to give his sheet literary quality; the rest of the paper was pretty well filled with advertisements of the store and the shop. It was not until after the Civil War that country newspapers became distinctively localized in their pages, and came to be recognized as an expression of the life of the town and community in which they were published. They began at this time to chronicle events, achievements, and happenings. Inspired no doubt by the necessity of defending North or South during the war, local newspapers began to voice the sentiments and defend the rights of town, county, and state in a way that they had never done previously. At about this time the country newspaper began to meet the needs of the farmer somewhat by publishing agricultural articles.

The most notable early contributions to agricultural literature in New York were the reports of the transactions of the Society Instituted in the State of New York for the Promotion of Agri-

culture, Arts, and Manufactures. The first of these reports appeared in 1792, to be followed by Part II in 1794, Part III in 1798, Part IV in 1799, and Part V in 1801. All are admirable. At no time in the 140 years that have followed have reports of societies or institutions connected with agriculture in New York been better in quality of material presented for the farmer, in literary style, in editorship, in printing, in paper, or in type. The first five agricultural reports are almost perfect models of their kind. Unfortunately, all are now rarities, to be found only in a few public libraries or in the hands of collectors. The Society for the Promotion of Agriculture, Arts, and Manufactures, it will be remembered, was succeeded by New York's second agricultural society in 1804, an organization which continued until 1819, under the name of the Society for the Promotion of Useful Arts. This organization published several volumes, the first in 1807 and the last in 1819, following the model set by the old society, but no one of its issues equal the earlier reports in any respect. Then came the Board of Agriculture, founded in 1819 and succeeded with one or two breaks by similar boards down to the present time. These several boards of agriculture have published almost without break very admirable reports which by and large constitute the most valuable contributions to the agricultural literature of the State.

Agricultural journalism began in New York on June 5, 1819, when Solomon Southwick launched *The Plough Boy* in Albany. Southwick was a remarkable man. He was born in Newport, Rhode Island, on Christmas Day, 1773. His father was the editor of the *Newport Mercury* and a Rhode Island patriot of the Revolution. The son learned printing in New York City, and in 1792 became part owner of the *Albany Register*, a Democratic paper of considerable influence. Southwick, an ardent Democrat, was at one time sheriff of Albany county; then postmaster of Albany; and in 1812 became a regent of the State University. *The Plough Boy* was conducted for a time under the pen-name of "Henry Homespun" and then in his own name. At about the same time he was publishing the *Christian Visitant* and the *National Democrat*. With interests so diffused, it is not to be wondered that *The Plough Boy* was not very potent in its agricultural influence,



## THE PRINTING PRESS AND THE FARMER

but still it was a start and as beginnings go in journalism a fairly good one. Southwick was the author of many pamphlets, among which were *The Pleasures of Poverty*, a poem, 1823; *A Solemn Warning Against Free Masonry*, 1827; *A Layman's Apology for the Appointment of Clerical Chaplains*, 1834; and *Five Lessons for Young Men*, 1837. Thus as a popular writer, a prominent politician, and a leader in the State, Southwick was an influential man. No doubt *The Plough Boy*, even though it fell short as an agricultural publication, was a very material influence for good in agriculture. It was published for 20-odd years.

The first really good agricultural journal published in the State was *The Genesee Farmer*, which appeared January 1, 1831, in Rochester. It was published and edited by Luther Tucker, an able and experienced journalist, who has the distinction of having taken the lead in Rochester, October 27, 1826, with the first daily paper printed west of New York City. Tucker's *Genesee Farmer* broke new ground in agricultural journalism as the first farm paper in the State, if not in the country, to be written directly from the standpoint of practical experience. Luther Tucker was born at Brandon, Vermont, May 7, 1802, and died in Albany, January 26, 1873. He has another claim for distinction among agricultural benefactors in New York. In 1840, he moved from Rochester to Albany and became much interested in the State Agricultural Society, and for many years was one of its most active members. He it was, after Elkanah Watson, who must be given credit for the success of the State Fair. He became interested in its activities in 1841 through the Agricultural Society, and took an active part in its affairs for the remainder of his life. To his efforts is due without question the long series of annual fairs held without a single break since 1841. In 1853, Luther Tucker established the *Country Gentleman*, a paper which has continued down until the present time, a son and a grandson having been interested in the paper as publishers and editors until a comparatively recent date.

On January 1, 1828, publication of the *New York Farmer and Horticultural Repository* was begun in New York City and continued for several years. It was devoted to practical husbandry, gardening, and the sciences intimately connected with rural pur-

A HISTORY OF AGRICULTURE



A Monthly Publication, Devoted to the Improvement of

**AGRICULTURE AND HORTICULTURE,**

AND TO

**RURAL AND DOMESTIC ECONOMY.**

---

EDITED BY

JOHN J. THOMAS AND M. B. BATEHAM,

ASSISTED BY DAVID THOMAS AND OTHERS.

---

VOLUME 2.

---

PUBLISHED BY BATEHAM AND CROSMAN.

ROCHESTER, NEW-YORK.

---

1841.

TITLE PAGE OF THE GENESEE FARMER FOR 1841

suits. The magazine was a monthly, and was published under the patronage of the New York Horticultural Society. It deserves particular mention because it was one of the first agricultural magazines to be well illustrated. Articles appearing in it were over the names of the most noted agriculturists, horticulturists, and scientists of the day.



## THE PRINTING PRESS AND THE FARMER

A third landmark in agricultural journalism in this State was the establishment of *The Cultivator* by Jesse Buel in March, 1834. Buel, as were Southwick and Tucker, was an experienced journalist and printer, having published and edited in succession the *Troy Budget*, founded in 1797; the *Poughkeepsie Guardian*, 1801; the *Kingston Plebian*; and the *Albany Argus*, 1813. He gave up his connection with the *Argus* in 1821, and bought a farm on an elevated, sandy tract near Albany, abandoned land as he found it, but which he made one of the best farms in the State through the use of fertilizers and better tillage. Jesse Buel was a man of prominence in the politics of the State as well as in its agriculture. In 1823, he became a member of the State Assembly, was then for many years a judge, the Whig candidate for Governor in 1836, and at the time of his death was a regent of the State University. He was also the first president of the Albany Horticultural Society, the third horticultural organization in the State. It will be remembered that the New York State Agricultural Society in 1834 authorized the publication of *The Cultivator* as the official organ of the Society, with Jesse Buel, J. P. Beekman, and J. D. Wasson as editors. Buel, from the first the leader, soon became the sole editor, and the paper during its life was one of the most influential agricultural publications of the State and Nation. Jesse Buel died in 1839, and the paper was purchased by Luther Tucker, who united it with *The Genesee Farmer* and continued its publication as a monthly until 1866 when it was merged with *The Country Gentleman*. Buel was the author of two notable agricultural books: *The Farmer's Instructor*, in 10 volumes; and *The Farmer's Companion, or Essays on the Principles and Practice of American Husbandry*.

Meanwhile, another Genesee Farmer made its appearance under the name *The New Genesee Farmer and Gardeners' Journal* in January, 1840. It was a monthly edited by John J. Thomas and M. B. Bateham, two more notable men in New York's galaxy of agricultural writers. Bateham was a partner in the first nursery planted in western New York, and was long proprietor of a well-known seed store in Rochester. His connection with the *Genesee Farmer* was of short duration, Thomas, the leading spirit from the first, soon taking full charge. John J. Thomas was a botanist,

pomologist, and agriculturist who was born in Aurora, Cayuga county, in January, 1810, and died in Union Springs in 1895. He edited *The New Genesee Farmer* from 1834 to 1853, when that journal was merged with *The Country Gentleman* at Albany, with which paper he continued as a sub-editor. Thomas wielded a ready pen, had wide knowledge of agricultural matters, and contributed to many other agricultural journals than those of which he was editor. He was the author also of the *American Fruit Culturist* and *Farm Implements and Farm Machinery*.

From this time on there was a rapid development of agricultural journalism in the country and in the State. Among the many were *The Quarterly Journal of Agriculture*, Albany, 1845; *Monthly Journal of Agriculture*, New York, 1845; *Working Farmer*, New York, 1849; *Rural New-Yorker*, New York, 1850, of which only the last named is now in existence.

The journals noted so far have been those published for the general farmer. Special publications in the several fields of agriculture now began to appear in numbers so great as even to preclude mention, some 60 or 70 in all. It is a small part of the tale to set down the agricultural journals of New York for there were journals almost without number read by New York farmers between 1800 and 1900 published in other states. Unfortunately, there is no library nor collector's bookshelves which contain copies of these from which even a few brief paragraphs might be written to gauge their value or even give their number. From the scant and fragmentary accounts of agricultural journals to be found here and there—and by far the best is to be found in Bailey's *Cyclopedia of American Agriculture*—one can hardly do more than to make a guess as to the number started during the century. It is probable that not fewer than a thousand such publications had their beginnings in this period, the great majority of which during the last half of the century had to do with special fields of agriculture, such as livestock, fruit growing, poultry, floriculture, horses, swine, bees, and so on.

To Jared Eliot is usually given the credit for having published the first book on agriculture in North America, probably because Eliot indicates in the preface to his book that he knew of no



other agricultural writings applicable to this continent. Bailey, however, in his *Standard Cyclopaedia of Horticulture*, gives an account of the *Husbandman's Guide* printed in Boston by John Allen in 1710, which antedates Eliot's book. Possibly special search would bring out other titles, but it is pleasing to believe that so good a book as Eliot's *Essays Upon Field Husbandry*, written by a man from so splendid a family as Jared Eliot, is our first notable agricultural text. Jared Eliot was a grandson of John Eliot, the "Apostle to the Indians," and the author of the *Indian Bible*, one of the earliest books published in America. Eliot's essays, devoted exclusively to agriculture, were six in number, the first one appearing in 1747, the last in 1759. The several essays were printed in one volume in Boston in 1760 and another edition in New York a little later. Eliot was a man of many parts, a minister, physician, botanist, investigator, author, and friend of Benjamin Franklin and of every other notable American scholar of his day. The book is written from the standpoint of an observer and student of agriculture. In his preface he says, "Having spent more than Thirty years in a Business that required a great deal of Travel, altho' it did not much hinder Reading and Study, it gave me an opportunity to see much of the Country, of making many Observations, and of being acquainted with very many Persons of Worth and Ingenuity, both Farmers and Others." In no field of endeavor did the times bring forth a better book than Jared Eliot's *Essays Upon Field Husbandry*.

Just a hundred years after Eliot's *Essays* appeared as the first notable landmark in agricultural literature, a second notable book, Norton's *Elements of Scientific Agriculture*, was published and marks the advent of scientific agricultural literature. Between the two there is a dreary, barren waste in which appeared a few school text books and a very few general books on agriculture that are readable but add little to the general knowledge of farming. One is amazed in looking through the publications which preceded the middle of the nineteenth century to see how greatly the ancients were relied upon as agricultural authorities. To be written in Cato, Varro, Pliny, Virgil, or Columella, ancients preceding and closely following Christ, seems to have been sufficiently good authority until, early in this century, Davy, Liebig, and

Boussingault began to apply the science of chemistry to farming. Norton was a chemist, a follower of the men whose names have just been given, and as such published in 1850 his *Elements of Scientific Agriculture* in which he makes a brave and on the whole a very successful attempt to explain farm practices by the application of science, and to Norton science meant chemistry. He, first in America, set forth the organic and inorganic elements of plants; sources of the food of plants; the origin of soil and the several kinds of soil and their connections with plants; the effects of cropping upon the soil and the necessity of rotation of crops; the necessity of manures, which are best and how best preserved; the composition of the different crops; and connection of composition with the needs in feeding. In spite of the fact that the author sticks too closely to the rigid application of chemistry to plant feeding, the old-time notion of applied chemistry, the conclusions and advice are generally sound.

Norton's point of view is made plain by his statement of purpose to

"relate the beautiful connexion which exists in every branch of scientific Agriculture. We may follow any particular substance from the soil to the plant, and from the plant to the animal, and finally back to the soil again. In all of its changes it remains the same in its nature, but is constantly presented to us in new forms. We see that there is an endless chain from the earth up to the animal, then back to the earth again. By watching this chain and the various transformations during its course, we may hope to grow constantly wiser, in every department of Agriculture."

The New York State Agricultural Society, sponsor of this historical account of New York agriculture, has reason to be proud of Norton's book since its matter first appeared as a prize essay in the *Transactions* of the Society for 1849. The Society then had the commendable practice of offering a premium of \$100 for the best essay on an agricultural subject, and in this year it was awarded to John P. Norton, Professor of Agricultural Chemistry, Yale College, New Haven, Connecticut. The judges were John Delafield, Oaklands; John P. Beekman, Kinderhook; and George Geddes, Fairmount, all notable agriculturists and dis-



tinguished citizens as well of New York State. The copyright of the essay remained with the author. In the *Transactions* of the Society, the essay comprises 151 pages. The book which Norton published the succeeding year fills a few more pages, but a casual comparison of the two texts shows that the work had not been greatly changed.

New York has another claim on this first eminent agricultural chemist of the country. Norton was a native son. He was born in Albany, July 19, 1822. As a youth he expressed a determination to be a farmer. His father had a farm in Farmington, Connecticut, where the son spent his summers, while the winters were spent in scientific study in Yale. In 1844, Norton went to Edinburgh, where he spent two years in the laboratory of the Agricultural Chemical Association. While in Scotland, he wrote several scientific papers for the British Association for the Advancement of Science, and an essay on oats for which he received a prize of 50 sovereigns from the Highland Agricultural Society. On his return to the United States, he became Professor of Agricultural Chemistry and of Vegetable and Animal Physiology in Yale, the position dating from August, 1846. He spent another year in Europe and did not enter actively into the work of the professorship until 1847, which he continued until his untimely death in 1852. During this short career, Norton gave many addresses in the northeastern states before agricultural societies and was a regular contributor to agricultural papers.

It is hardly fair to skip the score or more books in the hundred years between Eliot and Norton as being wholly without value. The trouble with most of them was that they were compilations from the ancients and from the English. Still, there were a few exceptions. Everyone who has had occasion to look up the history of agriculture has found a treasure-house in Deane's *New-England Farmer, or Georgical Dictionary*, a cyclopedia of agricultural facts as well as a general treatise. The author, the Rev. Samuel Deane, was Vice-president of Bowdoin College. Deane attempted to take all that was valuable in European books of husbandry and accommodate it to the climate and seasons of North America. Scarcely a detail of any of the varied agricultural pursuits escaped him and the book is indeed a mine of information. The first edition

appeared in 1790, the second in 1797, and the third in 1822. From the frequency with which the book is found in libraries and rare bookstores, the editions must have been large so that possibly it was read, as the author desired, "by every person who wishes well to the best interests of this country."

Another notable book just after the turn of the nineteenth century was Bernard M'Mahon's *American Gardeners' Calendar*, published in Philadelphia in 1806. The book was so popular that it went through at least 11 editions, the latest at hand in 1857. M'Mahon was an Irish horticulturist who came to America in 1796 to settle in Philadelphia where he became famous through his *Gardeners' Calendar* and his botanic garden founded in 1809 which he called "Upsal." Of gardeners' books there were at this time perhaps a score, and others followed in quick succession, numbers increasing year by year down until the present time. M'Mahon's is taken out of the general list as an outstanding work which must have had considerable influence upon gardening in New York.

Indirectly, George Washington made a valuable contribution to early American agricultural literature. Washington was born to bad habits in farming, a fact he quickly discovered and greatly wanted to remedy. Since there were in his day no experiment stations, agricultural colleges, county agents, farm papers, or farm organizations from whom he could get information, he had to do his own experimenting and seek information from whomsoever he could at home and in foreign lands. Out of Washington's comprehensive diary one could take excerpts telling of his experiments sufficient to make a splendid agricultural treatise. From his correspondence, still another volume and no small one might be published on agriculture, and this, in part, has been done. Two of the best English farm authors, Arthur Young and Sir John Sinclair, corresponded constantly with Washington in the years between the Revolution and his death. Washington's letters to and from these distinguished British agriculturists were published in London in 1800 and 1801; in Alexandria, Virginia, in 1803; and in Washington in 1847. It must not be thought that these books refer only to the agriculture of Virginia. Many of the discussions relate to farm machinery, livestock, crop rotation,



## THE PRINTING PRESS AND THE FARMER

fertilizers—all the fundamentals—and apply as well to New York as to Virginia.

There were, too, in the period between Eliot and Norton several textbooks for use in schools and by students of agriculture in general. One of these was Adam's *Agricultural Reader*, published in Boston in 1824; a second was Taylor's *Farmers' School Book*, published in Ithaca and Albany in 1837. Taylor's reader starts out with general discussions, but eventually takes up specific problems in farm practice. Distinction was lent to this text by a chapter on hemp written by Henry Clay. At the very end of the period under consideration, 1842, Alonzo Graves' *Elements of Scientific and Practical Agriculture*; Davis' *Textbook on Agriculture*, 1847; and Rogers' *Scientific Agriculture*, 1848, were published for school and fireside students. There is no pretense that this is a complete chronology of such textbooks, but these seem to be the commonest of the kind found in the libraries of the State.

The most pretentious and in many ways the most valuable contribution to the agricultural literature of the State is *The Natural History of the State of New York* by Dr. James Hall and Professors DeKay, Emmons, Beck, Vanuxen, and others. The work consists of 30 quarto volumes with many maps, plates, views, and numerous colored and black and white illustrations. The State of New York expended more than a million dollars on the surveys and work of printing and editing the report, the first volume of which was published in 1842 and the last in 1896. The volumes of particular interest to agriculture are five on zoology, two on botany, four on geology, and five on agriculture, including farm crops, fruits, insects, and fungi. Many of the plates illustrating these volumes are handsomely colored and all in all they contain a wealth of information for agriculturists and scientists.

One other class of books must be given brief consideration to close this incomplete and fragmentary discussion of early agricultural works. Much agricultural advice, good and bad, and much descriptive matter regarding American farm practices, accurate and inaccurate, is to be found in the books of travel published by the many Britishers who came to America to see

the country, introduce new religious or philosophical cults, or to engage in agriculture. By far the best of these is William Cobbett's *A Year's Residence in America*, published in London in 1819. No writer ever lived who wielded a more vigorous, enthusiastic, and slashing pen in any of the several fields in which Cobbett was interested. Cobbett's books, quoted frequently in this volume, are literary, economic, and political as well as agricultural treasures. His American political pamphlets, *Peter Porcupine Papers*, contain occasional references to American agriculture that entitle them to be rated as agricultural books. But it is his *American Gardener*, published in New York in 1819, and his American edition of William Forsyth's *Treatise on the Culture and Management of Fruit Trees*, published in New York and Philadelphia in 1802 and in Albany in 1803, which gave him place as one of America's foremost early writers on agriculture.

Of the other British visitors who spent little or much time in America and published their observations on agriculture, at least a score are worthy of note. The following are a few which any farmer might read with pleasure and profit, and from which there are quotations in this text. All appeared before 1850, after which perhaps twice as many more might be cited: *Travels through the Middle Settlements of North America in the Years 1759 and 1760 with Observations upon the State of the Colonies*, by the Rev. Andrew Burnaby, A. M., Vicar of Greenwich, Dublin, 1775; *Travels of Four Years and a Half in the United States of America During 1798, 1799, 1800, 1801 and 1802*, dedicated by permission to Thomas Jefferson, Esq., President of the United States, by John Davis, London, 1803; *Travels Through Part of the United States and Canada in 1818 and 1819*, by John M. Duncan, A. B., Glasgow, 1823; *A Tour from the City of New York to Detroit in the Michigan Territory made between the 2nd of May and the 22nd of September, 1818*, by William Darby, New York, 1819; *A Ramble of Six Thousand Miles Through the United States of America*, by S. A. Farrell, Esq., London, 1832; *A Tour Through North America, Together with a Comprehensive View of the Canadas and the United States as Adapted for Agricultural Immigration*, by Patrick Shirreff, Farmer, Edinburgh, 1835; *A Diary in America, with Remarks on Its Institution*, by



## THE PRINTING PRESS AND THE FARMER

Capt. Marryat, C. B., London, 1839; *Journal of a Tour in the State of New York in the Year 1830 with Remarks on Agriculture in Those Parts Most Eligible to Settlers: and Return to England by the Western Islands, in Consequence of Ship Wreck in the Robert Fulton*, by John Fowler, London, 1831; *Notes on the United States of America during a Phrenological Visit in 1838–1839–40*, by George Combe, Philadelphia, 1841; *A Run Through the United States during the Autumn of 1840*, by Lieut. Col. A. M. Maxwell, K. H., London, 1841; *Agricultural Tour in the United States and Upper Canada, with Miscellaneous Notices*, by Capt. Barclay, 1842.

The temptation is strong to continue a discussion of agricultural writers, which, it will be noted, has only attempted to cover books published before 1850. It is a hope and an assumption that most of the books published since 1850 are not so rare but that they are to be found rather commonly in the libraries of the State. The chapter must come to a close with another group of books deserving much more attention than it is possible to give it. A great number of botanists, geologists, zoologists, and travelers within the State have set down their observations upon the agriculture of New York. Many of these are technical, but there are not a few that are indispensable in a full study of the agriculture of New York, as: DeWitt Clinton's *Discourse Delivered before the Literary and Philosophical Society of New York in 1814*, a treatise of 148 pages, which has much interesting matter relating to agriculture, as has the same author's *Letters on the Natural History and Internal Resources of the State of New York*, published in 1822, under the *nom de plume* "Hibernicus." *Canals and Agriculture*, by Elkanah Watson, published in Albany, in 1820; and *Men and Times of the Revolution*, *Memoirs of Elkanah Watson*, published by his son in 1856, are notable for their contributions to the agricultural literature of the State.

## CHAPTER XVI

### FARM CROPS

**I**N the centuries of recorded history of mankind, the food plants of the several human races have changed but little. Usually the cultivated flora of a country is imposed by soil and climate, but sometimes a crop is the choice of a race or nation irrespective of environmental factors, adopted to fill a particular need or clung to from custom. It would seem that agriculture would quickly take up plants grown elsewhere of which the advantage is evident, and be thereby diverted from the cultivation of poorer crops. Many such substitutions have from time to time been suggested. The introduction of foreign plants is usually arrested, if not actually opposed, by the timidity, not of agriculture, but of consumers. This conservatism on the part of those who eat the foods of the world is due to the universal dislike in the animal kingdom, most strongly developed in the human family, to eating unfamiliar foods. But occasions arise when men are forced to eat strange foods, and when the untoward circumstances persist long enough, adjustment to the new diet becomes permanent. Such an occasion arose when Europeans came to the two westward continents.

It was a happy day for agriculture when settlers in the New World were forced by starvation to grow native esculents, and so to enrich the food supply of the world with corn, potatoes, beans, pumpkins, squashes, tomatoes and, shall we say, tobacco, the chief additions to the world's cultivated plants since the beginning of written history. It is always interesting to speculate on what the cultivated plants of the world might be if agriculture had begun as early in the New as in the Old World. Probably the crops of the New World would have been somewhat fewer than those of the Old because the latter has three great continents lying adjacent to each other, while the New World has but two, and far apart. DeCandolle in his *Origin of Cultivated Plants*, standard



## FARM CROPS

authority for a century, assorts cultivated plants into 247 species, of which 199 originated in the Old World and 45 in the New, with three doubtful, which gives too great a preponderance to Europe. In *Sturtevant's Notes on Edible Plants*, edited by the present author, the Americas make a much better showing. Sturtevant, first director of the New York State Agricultural Experiment Station, enumerates 563 domesticated species of plants under cultivation in various parts of the world, and a total of 4,447 species, some part or parts of which are edible. Of the species cultivated, 448 are Old World, and 115 New World; of the species with edible parts, 2,861 are inhabitants of the Old World, and 1,686 of the New.

Europeans coming to America made a brave attempt to bring farm crops with them, of which wheat, without question, was first to be sown on the Atlantic seaboard in North America. It is reputed to have been grown by Gosnold on the Elizabeth Islands in 1602, and the English planted it at Jamestown in 1607. It will be remembered that at Plymouth the Pilgrims sadly sowed wheat over the little burying ground on the hill where half their number lay at the end of the first winter, that the Indians might not know how great had been the toll Death had taken from them. A few years later, 1626, the Dutch planted wheat in New Netherland. Corn was a better crop for the new land, but the temptation to Europeans to grow wheat was ever strong. They knew bread as the staff of life; to one and all wheat was a staple product; and they would in the New as in the Old World organize the system of farming around it. Bushels of wheat in the granary were as good as money in the bank and often was a substitute for it in the early settlements. Every husbandman knew what it cost to plant, harvest, and thresh wheat. Of all crops it involved the least trouble and anxiety to settlers fresh from Europe.

In New York wheat seems to have been successful from the very first, for colonial documents report that considerable quantities grown by the Dutch were sent back to Holland in 1626 along with other European grains. Wheat grew especially well on the river bottom lands of the Hudson. In 1678 Gov. Andros estimated that the exports of this grain from the Province of New York were 60,000 bushels yearly, the principal markets being the

Dutch, French, and English islands of the West Indies. In the New Jersey Historical Society collections, Scot writes of east New Jersey: "This with the Province of New York, being the Granary or Store house of the West Indies, without which Barbadoes and the Leeward Islands could not subsist; Yea, New England is forced to come there every year for Corn." Wheat was the land's chief product in New York from the first settlements until the Erie Canal and the railroads brought a cheaper and better product from Ohio and the states of the West, and even then for some years it continued to be largely grown and to be profitable, by reason of the fact that New York City was the great grain market, and gave the whole State a ready cash crop. Under the stimulus of competition with the West, New York wheat growers made notable progress in better methods of cultivation. They were forced to use farm machinery; to be careful to sow clean, good seed; and to combat smut, midge, and the Hessian fly.

Wheat growing in New York began on Long Island, but soil exhaustion forced the grain to the river flats of the Hudson; thence to the Mohawk and central New York; and finally to the famous Genesee Valley, its last stand in the State, which for a generation was to hold the title "Granary of the Country." The midge and Hessian fly, beginning about 1830, within a decade had become so destructive that in all eastern New York wheat growing became unprofitable, and almost ceased to exist. Ten or fifteen years later, means had been found to combat these pests and there was a revival in wheat culture in central and eastern New York. Up until this time the wheat of the State had been winter varieties, but on the highlands of the Mohawk Valley, in Madison, Onondaga, and Cayuga counties, there was so much winterkilling that the yields were low and for a generation spring sorts were grown in nearly as great quantities as the winter. During the first half of the nineteenth century, New York and Pennsylvania were the two leading states in growing wheat, but by 1860 Ohio, Indiana, Illinois, and Wisconsin were all producing more than New York.

One of the causes for the failure of the wheat crop in eastern New York early in the nineteenth century was a fungous disease,



black stem-rust. This rust seems to have appeared in New England as early as 1660, and by the end of the eighteenth century was common wherever wheat had been long cultivated. Farmers came to believe that barberry bushes had some connection with the disease which they called "blasting" and observant Timothy Dwight, President of Yale University, in 1796, records some dozen or more examples in which he had seen wheat fields ruined because of the proximity of barberry bushes. One of these fields was on Long Island. Dwight describes it as follows:

"A farmer on Long Island sowed a particular piece of ground with wheat every second year, for near twenty years. On the Southern limit of this field grew a single Barberry bush. The Southern winds, prevailing at the season, in which this bush was in bloom, carried the effluvia, and afterwards the decayed blossoms, over a small breadth of this field to a considerable distance: and, wherever they fell, the wheat was blasted: while throughout the remainder of the field it was sound. This account I had from a respectable gentleman, who received it from the farmer himself; a man of fair reputation."

He says further, "This bush is, in New England, generally believed to blast both wheat and rye. Its blossoms which are very numerous and continue a considerable time, emit, very copiously, a pungent effluvium; believed to be so acrimonious, as to injure essentially both these kinds of grain."

The strong arm of the law seems to have been first invoked in the New World in the control of insect pests and fungous diseases against the offending barberry. Connecticut passed a law to bring about the destruction of barberries in 1726. Massachusetts and Rhode Island followed a little later, with a law compelling the eradication of the shrub. Procedures to enforce the law against the obnoxious bush were so timid that not many of the plants were destroyed, and the stem-rust ran its course. Timothy Dwight, one of the first to point an accusative finger at the barberry, eventually rejected the theory that this plant caused the blasting, and advanced another to the effect that the "use of barnyard manure forced the wheat too rapidly during the early stage of its growth." The learned men in all the states where barberries grew were skeptical of any relation between the stem-rust and

the bush. As everyone now knows, that which sometimes happens, the farmers were right and the learned men were wrong. More than a century after the first attempt to banish the barberry, several European investigators, beginning in 1870, published experimental data which proved conclusively that this plant acts as a host to the black stem-rust in certain stages of its growth. Then began a second period of legislation against the bush.

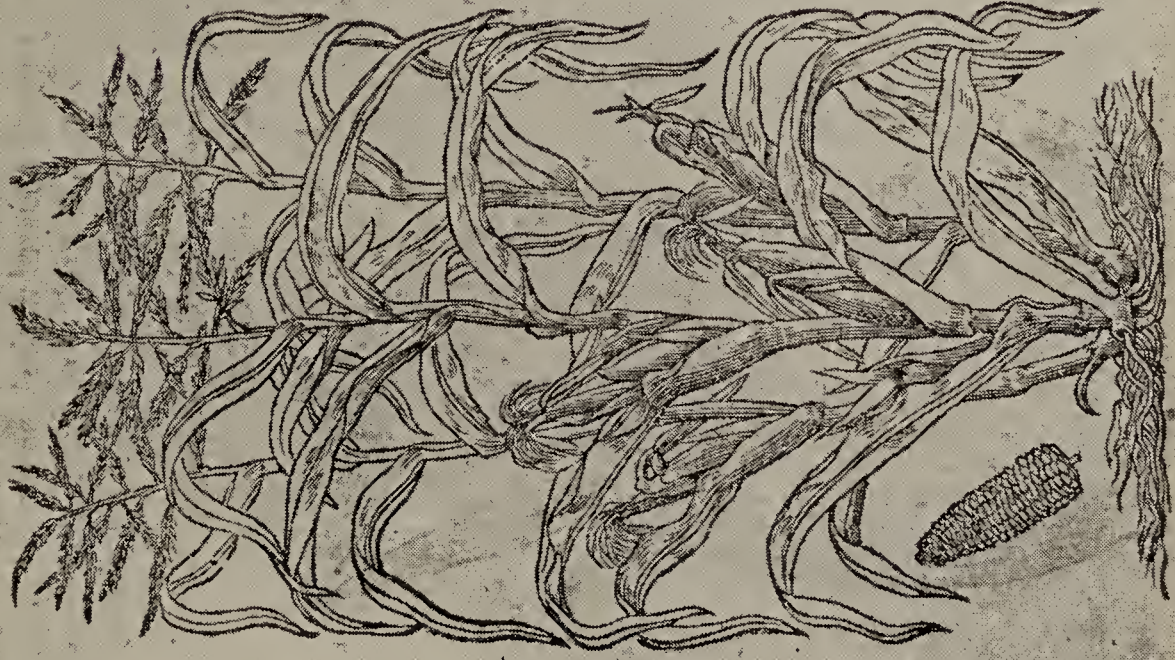
Soon after the Revolutionary War a most destructive insect enemy of wheat put in its appearance. It was the custom at the time to ascribe a good many ills of the country to the mercenary Hessians employed by the British in the attempt to subjugate the colonies, and some authority stated that the wheat fly had been introduced by the Hessians with provender for their horses—hence the name “Hessian fly.” The insect spread rapidly, much as we have seen San Jose scale, oriental peach moth, corn borer, and other foreign insects multiply and migrate, and by 1800 it was to be found in all the wheat fields of New York. On Long Island, wheat growers could not stop its ravages and replaced wheat with rye. Soon it was discovered that the first sharp frost killed the adult insect and so late sowing came into practice. Later, it was found that some wheats were more nearly immune than others and there was a change in varieties. As has been so often the case with pests of one kind and another, the Hessian fly rendered some service to wheat growers. Farmers found that the crop planted on manured land which had been well prepared suffered less than when careless culture was practiced. With better fertilization and better soil preparation, the yield actually increased throughout the State in spite of the fly.

In the late 1820's, another most destructive insect enemy began to take toll from the crop. It was a minute fly with orange-colored body and white wings which deposited its eggs in the ears of wheat, the larva of which fed on the grains. Northern New York was the first region in the Union to suffer from this pest. In due course, a matter of three or four years, the “midge,” as it was called, was to be found in every part of New York, to the end that it cut down yields per acre almost one-half. Spring wheat sown late escaped the insect and some varieties suffered less than others, so that eventually growers of the State circum-



CHAP. 61. Of Turkie Corne.

1 *Frumentum Asiaticum.*  
Corne of Asia.



2 *Frumentum Turcicum.*  
Turky corne.



A PICTURE OF INDIAN CORN  
From Johnson's Herbal, 1633





vented the pest, although not until they had suffered great hardships for a decade. The State Agricultural Society carried on an extensive investigation of the midge and reported in 1859 "that where land had been thoroughly underdrained, thus receiving an earlier sowing as well as ripening of the wheat, far less damage has been sustained from the ravages of the insect."

In the new settlements of New York, corn was much the best cereal crop for the rude conditions of the settler's clearings. Its seeds could be planted with little or no preceding preparation of the soil and the crop grew with subsequent care to produce an abundant harvest. Corn was more certain to yield reasonably than any other food-giving crop the settlers might plant. Moreover, it could be harvested over a period of a month or more while other grains had to be garnered in a few days at a precise time. It could be utilized as a human food with less trouble than any other grain. Thus, corn was the crop of crops for the pioneer. It literally fed the people of New York during the time they were creating farms from the forest. The conquest of the new lands of the State and of the continent would have been much slower had it not been for this admirable esculent which the Indians put in the possession of the whites.

The manner of planting, of culture, of harvesting, and use for sustenance of humans, was learned by the whites from the Indians and has been described in the chapter on Indian Agriculture. The experience was general that newly-cleared land in all the colonies ought first of all to be planted to corn so that by hoeing weeds might be killed and the land brought in better tilth for grain crops. Corn was a most desirable crop in early settlements also because cleared land was hard to come by and the yield of corn was greater in slashings than that of any other grain; moreover, the crop permitted multiple plantings of corn, pumpkins, beans, or squashes. Soon, of course, the careless Indian method of planting had to be superseded, if good yields were to be expected, by better preparation of the land with cultivation and cross-cultivation. Perhaps a modern farmer, could he have inspected the farm produce of the colonial period and some years after, would have missed most of all the hay and the legume crops which now

supply livestock with roughage foods. Corn stalks and corn blades were the roughages used by colonials. It was the common custom to "top" and strip stalks of blades before the corn ripened for hay and then pile the ripened stalks in stacks for a winter's supply of cattle food.

The Indians seem to have had but two kinds of corn, a flint and a dent. As progress was made in the agriculture of the country, new varieties quickly developed through seed selection; selection having been made for most part, it would seem, to obtain sorts that would mature early and thus bring about greater immunity from frost in northern New York and in high lands in all parts of the State. It would be interesting to trace the evolution of varieties of corn as Sturtevant has done, after having made a collection in 1880 of 307 varieties under cultivation in the country, which he says is but a tithe of the sorts grown in the world. As early as 1838, Jesse Buel recognized and described in *The Cultivator* 40 varieties of corn. Most of Buel's varieties have disappeared, all of them having been developed by selection to furnish food for swine and for the manufacture of whiskey, since shelled corn would not bear the cost of transportation to market, and the use of the grain for culinary purposes and for other livestock than swine was small. Eventually, with the building of the Erie Canal and of railroads, the West took the corn market and the crop suffered a decline until the dairy industry with its need of ensilage again brought corn to the fore as a major crop in New York's husbandry.

Sweet corn, now and for many years a very important commercial field crop in New York for canning and for the vegetable market, is one of the newest of the major field crops of America. Sweet corn first came into notice through the variety Papoon, a sort with eight rows and a red cob, which was introduced in Plymouth, Massachusetts, in 1779 by Captain Richard Bagnall, a soldier returning from Sullivan's raid in western New York. The story goes that the seed was obtained on the upper reaches of the Susquehanna, but whether in New York or Pennsylvania was not said. There is a tradition that the Indians grew sweet corn in their village of Kanadasaga, now Geneva, New York, at the time Sullivan destroyed the Indian encampment in 1779. The



## FARM CROPS

present site of the New York State Agricultural Experiment Station is on what was an Indian field at that time, and it is pleasant to think that the first sweet corn seen by whites may have been on land now owned by the Experiment Station. The culture of sweet corn made little progress until well toward the close of the nineteenth century. Thomas Jefferson, in his copious *Notes on Virginia* in 1781, mentions all the well-known crops of the country, rarities as well, but says nothing of sweet corn. As late as 1832, vegetable catalogs listed but one sort of sweet corn. In 1853, two sorts had come into common use; by 1866, 12 varieties were listed; in 1884, Sturtevant described 33 varieties. In a monograph to be published shortly by the State Experiment Station 225 varieties will be described. For nearly three centuries Americans were content to use field corn in the green state as a vegetable under the almost universal appellation of "roasting ears." A discriminating taste as to texture and flavor in sweet corn is therefore a very recent development.

Popcorn goes back centuries to the Quichuas of Peru and the Aztecs of Mexico, both peoples having grown red, white, yellow, and blue popcorns. Some field corns in common with popcorns, have the property of eversion or turning inside out through the explosion of the moisture contained on the application of heat, so that, probably, it was an easy matter to develop a popping strain by selection. Popcorn escaped mention by most American writers, but there is evidence that the Mohawks and the Iroquois had it in early New York, and that it has come down to this time from the earliest settlers, never as a very important field crop, but everywhere in the State an esteemed inhabitant of the vegetable garden or of a plot set aside for the youth of the family to try their apprentice hands in farming.

Oats, barley, and buckwheat, minor crops in most grain-growing parts of the United States, have been important farm crops in New York from the beginning. Oats is and always has been the chief grain provender for the horse in New York, and in Scotch settlements during most of the nineteenth century it was used in making oatmeal for human food. English travelers usually found fault with the varieties of oats grown in New York and the

method of tillage. "Lean," "chaffy," and "too dark in color" were common characterizations of Scotch and English observers. The practice of sowing mixed crops seems to have been much more common a few generations ago than it is now. Peas and oats, and rye and oats were often sown together for cattle feed, and wheat and rye were so commonly sown together for use in bread-making that the crop entered largely into agricultural trade under the name "meslin." Barley from the beginning of settlements in New York down to the passage of the Eighteenth Amendment was a highly esteemed grain crop, chiefly used in brewing beer, although when wheat was scarce barley flour was often used for bread and always more or less for feeding stock. In 1820, two-thirds of all the barley grown in the United States was produced in New York and marketed at Albany and Catskill, the estimated yield for these markets being 450,000 bushels, selling at 75 cents a bushel. The increased emigration of Germans to the United States in the middle of the nineteenth century stimulated the production of barley for brewing. Buckwheat has from the first been a favored minor grain in New York, and to this day the State produces much of the crop grown in the whole country. Its uses have always been the same, those of provender for poultry and swine and as a human food for making buckwheat cakes, a familiar dish on farmers' tables for at least two centuries.

Rye was cultivated in all the northern colonies soon after their settlement. In New York it was a strong competitor with wheat in both the Dutch and English settlements, especially on the light, sandy soils of Long Island and in the highlands of the Hudson, where it yielded better than wheat. During the ravages of the "blast," the Hessian fly, and midge, wheat flour was a luxury, and rye and corn bread took the place of the staff of life, passing in the parlance of the northern states as "rye and Injun." Rye was much used for distillation in the production of whiskey, and its straw was at a premium to supplement winter fodder for livestock. The yield was usually higher than that of wheat, and there was always a fair yield on poor land in the hands of careless farmers. In 1840, more than half the rye produced in the United States came from New York. But after that date in the Census reports there is a rather steady decline in total production.





Die kurfürstliche Familie bei den ersten Kartoffelpflanzungen.

THE GREAT ELECTOR, FREDERICK WILLIAM, WITH HIS  
CONSORT, INSPECTING POTATOES PLANTED IN THE BERLIN  
LUSTGARTEN

*From an old etching*







The potato, as everybody knows, is a New World plant. After corn it is the hemisphere's next greatest contribution to the food products of the world. It was taken to Ireland from the West Indies sometime before 1600 and a half century later began to be a common food for the Irish. Sometime in the middle of the seventeenth century, Irish emigrants re-introduced the potato into America, and they alone seem to have cultivated it for at least the century that followed. Native Americans took up the crop with the greatest reluctance. From early descriptions, the varieties until the middle of the nineteenth century seem to have been poor, small, knotty, and few in the hill. It was not until 1840 that the potato began to make much of a showing as a farm crop in New York. In that year, the Census shows that 30,000,000 bushels were produced, more than half of the total production of the entire country, and from then until now New York has been first or second in the production of potatoes among the states of the Union. Its uses until the middle of the century were solely for human food, but after that time the potato came much into use for the manufacture of starch, with high hopes and many experiments in the earlier years of its new-found popularity that the starch might be converted into sugar.

Economists and statesmen early recognized the value of potatoes as a human food, but the common folk would have none of it and thereby hang several tales, were there space to tell them, most interesting.

The potato was a curiosity in Germany in 1651, for an etching of that date shows Frederick William, The Great Elector, 1620–1688, with his consort inspecting a plantation of them in the Berlin Lustgarten. More than a century later, Frederick the Great, 1712–1786, recognized the great value of the potato, and forced the farmers of Prussia to plant it. Not Frederick the Great, however, but the terrible famine of 1771–72 in continental Europe, brought the people to plant the crop in European nations. France as well as Germany thought it expedient to increase the acreage of the cheap and nutritious tuber. Parmentier, a French scientist and economist, author of an early book on the potato, devised a plan to make the plant popular in France. He sent a tub of potato plants to King Louis XVI, who wore their flowers



in his buttonhole, and Marie Antoinette attended a ball with a wreath of potato blossoms in her hair. He persuaded the King to give him the use of 100 acres of land in the parks of Paris to



A PICTURE OF THE POTATO FROM BAUHIN'S  
PRODROMOS, 1620

grow potatoes. During the day the plantings were guarded by soldiers to give the people a notion that the crop was exceedingly valuable. The guards were withdrawn at night, when curious and covetous gardeners surreptitiously stole tubers to store and grow in their gardens the next season. Parmentier gave a dinner to Benjamin Franklin and Lavoisier, the great French chemist, at which the potato served in a variety of ways was the only food. It is pleasant to record that to this day the French keep the potato blooming on the grave of Parmentier.

The potato caused a complete change in the status of the Irish nation in the first half of the nineteenth century. Sir Walter Raleigh is said to have introduced the plant in Ireland from the



## FARM CROPS

West Indies in 1586, but the good deed is also credited to Sir Francis Drake and by some to Sir Robert Southwell. At any rate, the potato came to Ireland about 1600. For a century thereafter it was a luxury for rich men's gardens in Ireland, but little by little became the commonest, cheapest, and most nutritious food for the teeming Irish population. By 1800, three-fourths of the people on the island were subsisting on potatoes. Then came the potato blight that year after year ruined the crop and brought famine and death to every part of Ireland. It is estimated that during the first twenty years of the blight epidemic more than a million Irish died of starvation; in the two decades that followed as many more emigrated to America, coming mostly to New York to dig the Erie, build New York's railroads, and work as laborers on New York farms, thus most profoundly affecting agriculture and industry in the State.

The potato now encircles the globe in both the temperate zones, and is the world over so common and so valuable a starchy food that it is hard to picture the nations of the earth without it. Yet three centuries ago the potato was scarcely known in either Europe or America, and on both continents as late as 1800 was derided as a human food. Quite until the middle of the nineteenth century, potatoes in Europe and in America were grown in small beds as a garden crop, and they were not regarded as quite a proper food to serve at good tables because of their low, Irish antecedents, everywhere called the "Irish potato." The tuberous-rooted artichoke was considered a better starchy food on both continents. As late as 1819, William Cobbett, he of the trenchant pen, had this to say of the potato:

"Nor do I say, that it is filthy to eat potatoes. I do not ridicule the using of them as sauce. What I laugh at is, the idea of the use of them being a saving; of their going further than bread; of the cultivation of them in lieu of wheat adding to the human sustenance of a country. This is what I laugh at; and laugh I must as long as I have the above estimate before me. As food for cattle, sheep or hogs, this is the worst of all the green and root crops; but of this I have said enough before; and therefore, I now dismiss the Potatoe with the hope, that I shall never again have to write the word, or see the thing."

## A HISTORY OF AGRICULTURE

In the 1840's, an epidemic of potato blight, introduced no doubt from Ireland, swept like a wave of fire over the fields of North America. Scientists knew nothing of bacteria, and were therefore wholly ignorant of the cause of the epidemic. Agricultural writers assumed that through long-continued asexual propagation the plant had degenerated and lost its pristine vigor. Chauncey E. Goodrich, a Congregational minister of Utica, New York, conceived the idea that the potato could be rehabilitated by going back to seed for a new start. He sent to South America, habitat of the plant, for seed, from which he grew a variety under the name Rough Purple Chile. From this sort, in 1853, he produced the Garnet Chile, which, in turn, was the parent in 1861, of the Early Rose. From these two varieties, Garnet Chile and Early Rose, have been developed in 80 years the 200 and more varieties which now constitute the potato flora of the United States.

The field, navy, dried, or kidney bean, whichever of these names one may care to call the plant, has been cultivated as a field crop less than a hundred years, and had its origin as a major farm product, as every New Yorker will be glad to know, in this State. Beans were grown by the Indians and by settlers in family gardens in the very earliest settlements, but beans as a farm crop were first grown in the town of Yates, Orleans county, New York. In 1836, Stephen Coe brought from the eastern part of New York a pint of beans which he planted in the locality named. The product of the pint of seed yielded his son Tunis H. Coe in 1839 some 30-odd bushels which were sold to H. B. Prentiss of Albion. This was perhaps the first load of beans sold in western New York. For some years, the production of beans for the winter market was confined to Orleans county. But with the advent of the wheat midge, which proved particularly destructive in the fields of western New York, farmers began to plant more beans. The industry made little growth, however, until the Civil War, when the Government began to buy beans for the army. The industry now grew apace. The soldiers, at first forced to eat a product they did not like, after they had learned to eat them, carried a taste for beans to all parts of the country, and bean





THE RED KIDNEY FIELD BEAN, DERIVATIVE OF THE INDIAN BEAN





## FARM CROPS

growing was off to a grand start at the close of the Civil War. Soon New York was producing beans at the rate of 2,000,000 bushels per year and long led all other states in the industry; in later years it has fallen into second or perhaps third place.

Colonials in every part of the country were hard put to it for roughage to feed livestock. Everywhere there was complaint of poor pasturage of native grasses. "All flesh is grass" is literally true in the rearing of farm animals, and, lacking pasturage and hay, the colonials were often under necessity of slaughtering their livestock to keep them from starvation. European grasses were early brought in but their cultivation was little attended to. Seed, until the advent of the fanning machine in the nineteenth century, was unwinnowed chaff gathered from the hay mows or around hay stacks and often contained as great a quantity of weed as of grass seed. Often a farmer could provide his livestock in winter only with sedges, marsh hay, and coarse reeds; perhaps the commonest and best fodder in the early settlements in New York was the tops of corn and leaves stripped from the cornstalk while still green. It was a great step forward when good seed became available and a rotation was worked out with clovers and grasses between grain crops, a rotation that required a century or more to win favor in preference to the old system of allowing fields between grain crops to lie idle in weed fallow.

It was not until late in the eighteenth century that the seeding of uplands with timothy and red clover and other English grasses became a common practice on New York farms. There are few references to clover growing in New England and neighboring states before the Revolution. Peter Kalm gives us one such reference in 1749 when he speaks of clover as if it were a rarity: "Red clover was sown in several places on the hills without the town (New York). The country people were now employed in mowing the meadows. Some were already mown; and the dry clover was put under cover, in order to be carried away the first opportunity." Fortunately, as soon as clearings had been made and cattle turned into fields to graze, white and red clover appeared with surprising rapidity in uncultivated lands, and gave good pasturage but nothing to cut for winter provender.

It was a great boon to New World agriculture when early in the eighteenth century timothy came in but how, when, or where does not appear. All of a sudden it became so common that it was supposed to have been indigenous in America, but it is now known that timothy is an Old World grass, growing naturally and in England very commonly under the name "cats-tail grass." When first known in New England, it passed as "herd-grass." Sometime in the 1720's it is recorded that one Timothy Hanson brought seed of the plant from Portsmouth, New Hampshire, to New York State, where it thrived and was eventually given Hanson's Christian name.

There seems to have been no great demand for hay as a commercial product until early in the nineteenth century, when the need of fodder by livery and private stables in towns and cities gave farmers a profitable market. Horses for the turnpikes and the towpath on the canals increased the demand, and by the middle of the nineteenth century timothy and clover hay were about the most profitable farm crops New York produced, especially since the hay-producing area for the whole United States was at that time in the northeastern states, with New York as the leading producer. Sometime in the middle of this century, the practice was introduced of sowing clover and timothy together, a mixture which greatly increased the total production of hay. As early as 1840, New York was leading the states in the Union in hay production, with a gross tonnage of over three million tons for the year. It was at this time the chief farm crop in the central part of the State. Oneida, Madison, Chenango, Herkimer, Otsego, and Montgomery counties produced most of the crop, and nearly all of the farming in the vast region covered by these counties centered about rotations which would produce the largest yield of hay, a system of farming made necessary because this part of the State could not compete with the western counties in the production of grains. There was at the time much hay grown on Long Island and the lowlands of the Hudson to supply the stables of New York City with provender. Undoubtedly much good land in New York has been ruined by being kept too long in timothy, a crop so hard on land as to lead to the saying "wheat, hay, hell."



Alfalfa as a staple forage crop is an introduction almost of the present generation in New York State. It is, however, probably one of the oldest of the forage plants, having been grown in southwestern Asia, southern Europe, and northern Africa for centuries. An attempt to introduce it in New York was made in 1790 by energetic Robert Livingston, who in 1793 had 15 acres of alfalfa growing in Jefferson county under the French name *lucerne*. Livingston reported that his *lucerne* grew luxuriantly the first year, but then turned yellow and "pined away." There was no county agent to tell him that his land needed liming. Many trials of *lucerne* and alfalfa were reported in the proceedings of the New York Agricultural Society, but plantations all came to naught except in a few instances in central New York, now the alfalfa belt of the State, where the plant held its own and was grown in a small way. Besides the necessity of a well-limed soil it eventually turned out that land needed to be inoculated to grow good alfalfa. Moreover, special technic was required in curing. Alfalfa growing in New York may be said to have begun in 1894, when the New York State Agricultural Experiment Station at Geneva published a bulletin on alfalfa forage for milk cows, setting forth the very great value of this forage crop for dairymen. In later bulletins, this Station published directions for curing and made plain that it was necessary to inoculate the soil, and for many years distributed inoculated soil to farmers in all parts of the State.

Washington's diary contains an account of an experiment which he carried on with fertilizers that shows well the state of knowledge on the enrichment of land in colonial days. Under date of April 14, 1760, Washington wrote:

"Mixed my composts in a box with the apartments in the following manner, viz. No. 1 is three pecks of earth brought from below the hill out of the 46 acre field without any mixture.

"In No. 2 is two pecks of sand earth and one of marle taken out of the said field, which marle seemed a little inclined to sand.

"3 has 2 pecks of sd. earth and 1 of river sand.

"4 has a peck of Horse Dung.

"5 has mud taken out of the creek.

“6 has cow dung.

“7 has marle from the Gulleys on the hillside, wch. seem'd to be purer than the other.

“8 sheep dung.

“9 Black mould from the Gulleys on the hillside, wch. seemed to be purer than the other.

“10 Clay got just below the garden.

“All mixed with the same quantity and sort of earth in the most effective manner by reducing the whole to a tolerable degree of fineness and rubbing them well together on a cloth. In each of these divisions were planted three grains of wheat, 3 of oats, and as many of barley, all of equal distances in Rows and of equal depth done by a machine made for the purpose. The wheat rows are next the numbered side, the oats in the middle, and the barley on the side next the upper part of the Garden. Two or three hours after sowing in this manner, and about an hour before sunset I watered them all equally alike with water that had been standing in a tub abt two hours exposed to the sun.”

The diary records that three weeks later, No. 8, sheep dung, and No. 9, black mould, gave the best results.

Washington's childlike experiment gives a clue to most of the substances used as fertilizers throughout his long career as a farmer and for many years after his death. Animal manures, wood ashes, plaster, fish, bones, and the body material of animals constituted the known fertilizers of the agricultural world until Theodore de Saussure early in the nineteenth century made plain the existence in plants of certain mineral elements of the soil. A little later, in 1843, Justus von Liebig promulgated his mineral theory of the fertilization of plants. Chemists maintain that this was the beginning of fertilization of plants with minerals. But this is not quite accurate, for when Charles Darwin made his famous voyage in the *Beagle* along the Pacific Coast of South America, 1831–38, he traveled inland and found that the Indians of Peru, Bolivia, and northern Chile, agriculturists more advanced than any other natives of the New World, had for centuries been using clay-like earth from the great central valley in Chile as a fertilizer. Darwin had to know, of course, what the clay contained, and found that it was nitrate of soda. Soon nitrate of soda was on



the market as a fertilizer. But another great European scientist had preceded Darwin. Baron Von Humboldt, traveling up the Pacific Coast by sea, 1801–03, found in the great ocean current which bears his name a group of islands thickly covered with centuries-old deposits of bird dung. The ancient farmers of Peru annually visited these islands and carried away the dried dung to fertilize their lands. Von Humboldt recognized the value of the fertilizer and his published accounts stimulated its commercial exportation, under the Spanish name of “guano,” to the agricultural regions of the world.

The first shipments of Chilean nitrate were made from Iquique, Chile, in 1830, to England for agricultural purposes, but farmers would not buy, and the nitrate was dumped into the sea. It was but a few years, however, until millions of tons of the refined salt were being shipped to the agricultural countries of the globe. Guano was given experimental trials in England and Germany as early as 1840, and by 1850 its commercial exploitation was under way. By 1885 the exports from the little islands in the Pacific had reached 400,000 tons annually. The United States began the use of guano a little earlier than the European countries, for it is on record that a small importation was made in 1832. By 1856 annual importations reached a maximum of 50,000 tons.

The manufacture of superphosphates from geologic deposits began in England in 1843, and soon after deposits in Spain and southeastern United States were being worked. In 1843, in boring for common salt near Stassfurt in Germany, a variety of salts was discovered and soon after the manufacture of potash fertilizers was begun in Germany, although it was not until 1860 that these German deposits began to be worked extensively.

All of the materials for an industry were now at hand, and soon capitalists were busy exploiting the manufacture of fertilizers. Many of the dealers were honest and, aided by chemists, made and sold good wares. Unfortunately, there were many dishonest or ignorant, who began to prey on farmers. It was impossible for a man buying to know honest brands from dishonest ones. It became apparent that the fertilizer industry must be regulated by law, and state after state began to take the matter in hand. This was the beginning of regulatory work which is now

made to cover feeds, sprays, legume inoculants, and the grading of fruits and vegetables. The dates for fertilizer control were for Massachusetts, 1872; New Jersey, 1874; North Carolina, 1877;

## TO FARMERS.

### POUDRETTE! POUDRETTE!!

The LODI MANUFACTURING COMPANY (the oldest manufacturers of Fertilizers in the United States) offer their celebrated Poudrette for sale at lower prices than any other fertilizer in market.

It is made from the night soil and offal of New York City, and has been in use by thousands of farmers for over a quarter of a century: \$4 will manure an Acre of Corn in the hill, and increase the yield one third.

A Pamphlet with the experience in its use on Lawns, Garden Vegetables, Corn, Potatoes, and Tobacco, of hundreds of Farmers, some of whom have used it for over 20 years, containing also price, directions for use, &c., will be sent *free* to any person applying.

**LODI MANUFACTURING CO.,**

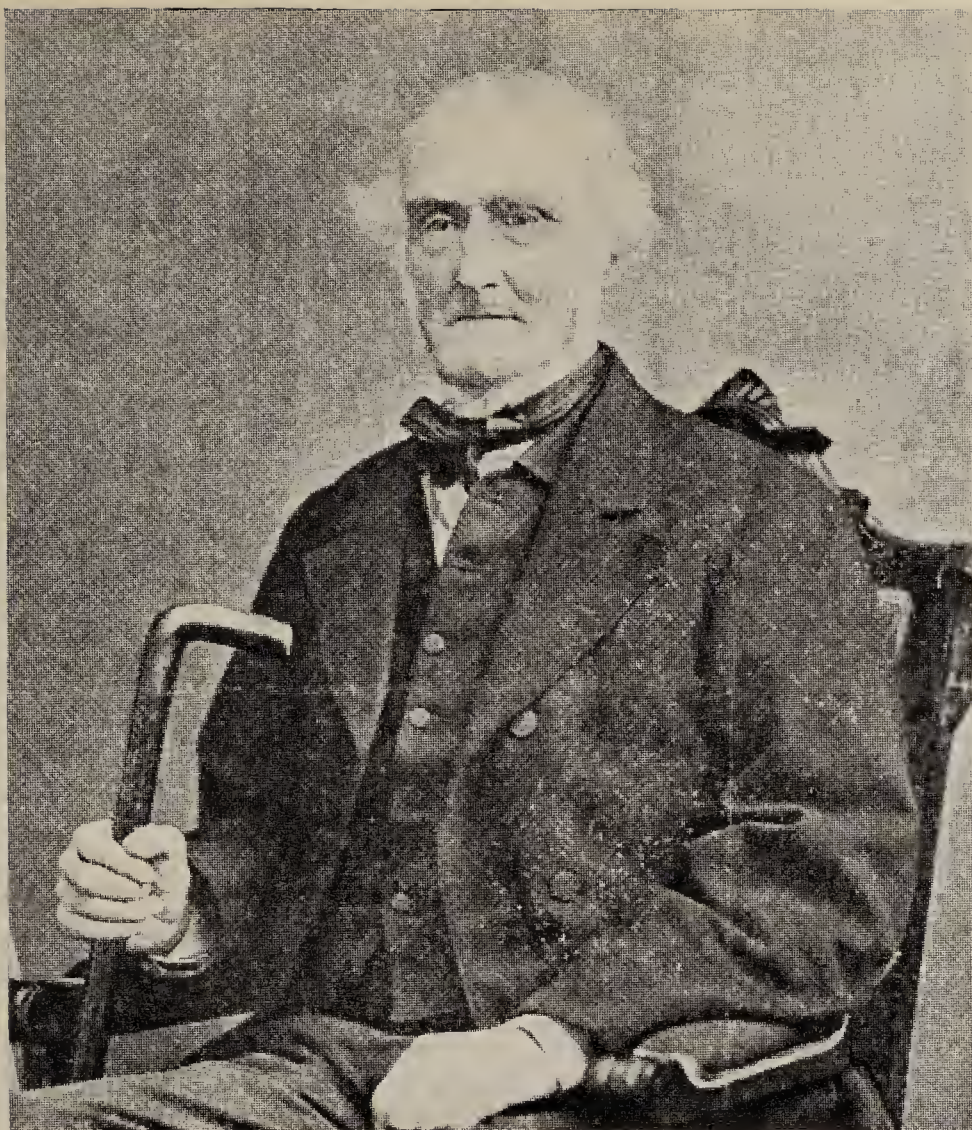
66 Courtlandt Street, New York.

Connecticut, 1881, and New York, 1884. The New York State Agricultural Experiment Station at Geneva was at first entrusted with the execution of the law in this State, but soon after it was turned over to the State Department of Agriculture. The Experiment Station, however, has continued the analyses.

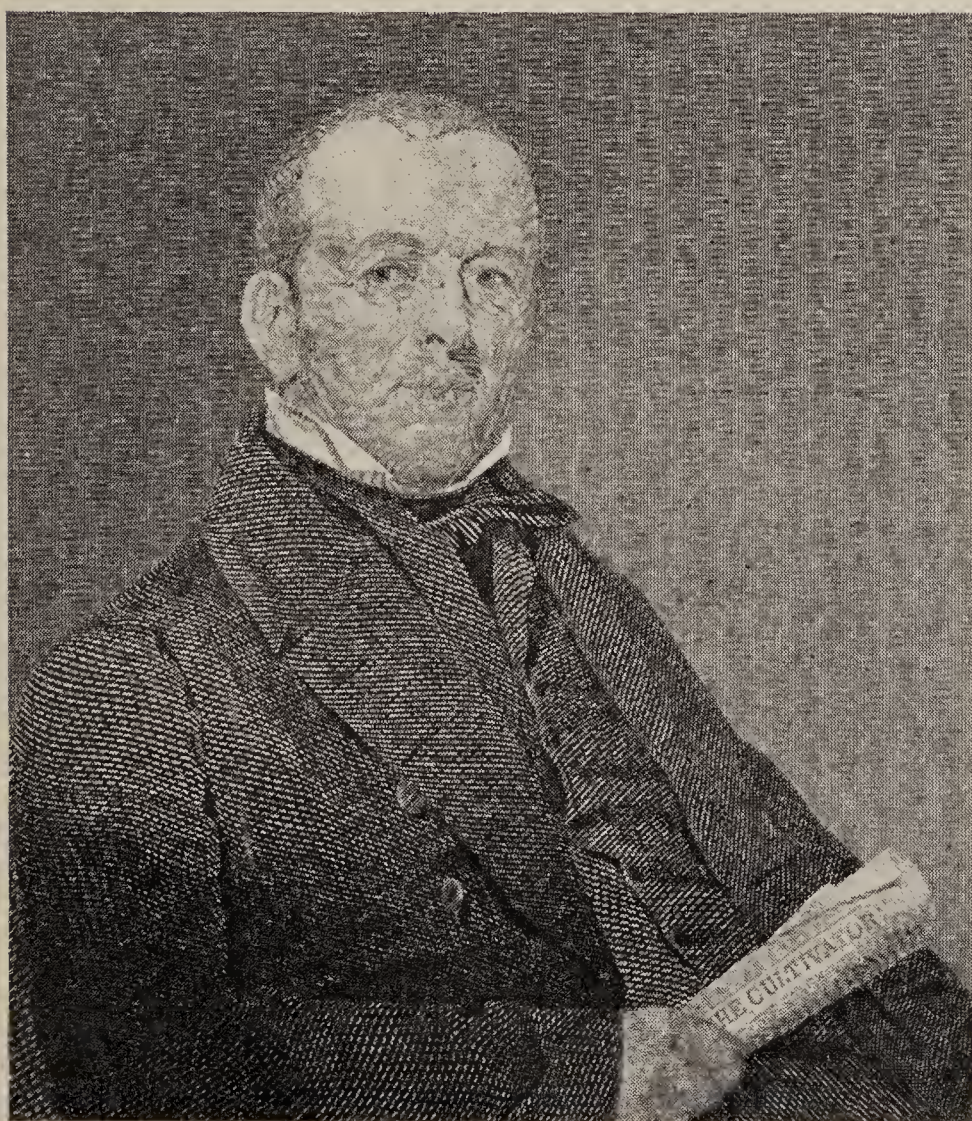
The colonnials paid no attention to the rotation of crops, conservation of the soil, and soil erosion. Indeed, we have had to wait until the present generation to see farmers doing much about the last two fundamentals of sound agricultural practice. Rotation of crops began in Washington's time, although there had been some discussion of the subject before he brought the necessity of rotation to the attention of American farmers. (See page 74.) The Jews in Palestine, the Greeks, and the Romans had practiced fallowing and all Europe and all North America continued to fallow farm lands until perhaps the middle of the nineteenth century, although for a hundred years advanced agriculturists had been recommending one rotation or another for farm crops. Rotation systems came to America from England, not always the best by the way for American environment, and with them a system of horse tillage introduced in 1731 by one of the world's agricultural geniuses, Jethro Tull. It took at least a hundred years after Tull published the results of his epoch-making experiments to overhaul and improve tillage and rotation systems in North America.

A prominent landmark in the history of agriculture in New York, in the continent for that matter, was the introduction of





JOHN JOHNSON



JESSE BUEL







## FARM CROPS

tile drainage by John Johnson, a Scotchman who emigrated to America in 1821. Johnson purchased a small farm of 112 acres in the town of Fayette, Seneca county, on the shore of Seneca Lake, and here, in a field where Johnson's tile are still occasionally plowed up, put in the first tile drain laid in America. Johnson's land was cold, wet, and a heavy clay, and he at once saw that he must remove the surplus water, as he had seen done in Scotland, if he were to farm well. He had to buy his tile in Scotland, and his first shipment reached New York in 1835. Against the advice and under the scoffings of all his neighbors, Johnson began to lay tile, and by 1851 had laid 16 miles of tile on his own farm. His tile were of the horse-shoe type and were laid in ditches  $2\frac{1}{2}$  feet deep and 20 feet apart. In 1852 Johnson was awarded the first premium of the New York Agricultural Society, a silver cup, for the best experiments in draining land. John Johnson died in Geneva, New York, November 4, 1880, one of the chief benefactors of the State's agriculture.

The first tile made in America were fashioned by hand under Johnson's supervision. In 1848, John Delafield, a neighbor of Johnson's, imported from England a Scragg's tile machine with which tile of improved quality and greatly lessened cost were made. John Delafield was scarcely less remarkable as a farmer and a man of affairs than John Johnson. He was a New Yorker, born in 1786, graduated from Columbia College in 1805, and after a most adventurous life in the West Indies, in the Peninsular War in Spain and Portugal, prison life in England during the War of 1812, followed by a business career in New York from 1815 to 1841, he came to the town of Fayette and bought a farm adjoining Johnson's. He believed thoroughly in tile draining and possibly did more to promote its use than Johnson. In 1846, Delafield was elected President of the Seneca County Agricultural Society, a position which he held until the time of his death October 22, 1853. In 1851, Delafield was elected President of the New York State Agricultural Society, and the State Fair at Rochester that year was held under his management. His farm of Oakland was granted a State's premium by the State Agricultural Society in 1848. In 1850, Delafield published in the *Transactions* of the State Agricultural Society an agricultural history and sur-

vey of Seneca county, so accurate and so well done that it was a basis for the history of a number of other counties subsequently published by the Agricultural Society. Perhaps the crowning work of John Delafield's life, however, was his successful effort to establish a school of agriculture in which connection we shall write of him in another chapter.

Although Johnson and Delafield put in practice and disseminated knowledge in regard to tile drains, it must not be thought that drainage had not been practiced in the State before Johnson's experiment was undertaken. The necessity of draining wet, heavy land had been recognized and practiced more or less for a hundred years before tiles came in use for draining. In Jesse Buel's *Cultivator* for September, 1834, the leading article, presumably written by Buel, contains a summary of drainage practices as they then existed in New York. Buel describes several methods of draining land; the pit method in which a large hole was dug and filled with stone, the overflow of which was carried off by stone drains; drainage by stoned ditches in which a trench two to three feet deep was filled half full of stone and then covered with earth; straw drains in which a rope of straw five or six inches in diameter took the place of tile; brush drains made by tying fagots in bundles a foot or thereabouts in diameter, and laying them at the bottom of a ditch two or three feet deep. Buel recommended stone drains as the best of the methods in practice in 1834—primitive indeed were the farm operations of that time.

The labor put in in growing farm crops until machinery came to the rescue was deadly heavy. The cultivator did not supplant the hand hoe until long after cultivators had been invented and hoeing, harvesting, and threshing were tasks at which men grubbed and sweated themselves into their graves years before their allotted span of life had been spent. There was no let-up throughout the year. In winter, there were rails to be split for long lines of zigzag fences, "horse-high and hog-tight;" and forest products of many kinds to be made ready for the market. Pulling a saw, swinging an axe and a mallet, with sore muscles and chafed and cracked hands in winter was about as trying work as cradling, raking and binding, stacking and threshing, in the long, sweaty



dog-days of summer. Farmers in most parts of the State, until the advent of farm machinery, to compete with their neighbors must be out of bed at four o'clock in the morning and keep at work 17 long hours until nine o'clock at night, the two ends of the day being taken up with chores and the interval with the heavy work of the farm. Of hired labor there was little. The farmer bred a family to care for his acres, or himself failing in procreation came to terms with some neighbor who had too many sons and daughters and must "bind them out."

A good picture of farm labor on Long Island is given by William Cobbett, to quote whom is a constant temptation, in his *Year's Residence in the United States of America*. In good, vigorous English, Cobbett gives in these three paragraphs not only a picture of American labor, but an admirable comparison of farm labor conditions in New York and in England:

"*Labour* is the great article of expence upon a farm; yet it is not nearly so great as in England, in proportion to the amount of the produce of a farm, especially if the poor-rates be, in both cases, included. However, speaking of the positive wages, a good farm-labourer has *twenty-five pounds sterling a year* and his board and lodging; and a good day-labourer has, upon an average, *a dollar a day*. A woman servant, in a farm-house, has from forty to fifty dollars a year, or eleven pounds sterling. These are the average of the wages throughout the country. But, then, mind, the farmer has nothing (for, really, it is not worth mentioning) to pay in *poor rates*; which in England, must always be added to the wages that a farmer pays; and, sometimes, they far exceed the wages.

"It is, too, of importance to know, *what sort of labourers* these Americans are; for, though a labourer is a labourer, still there is some difference in them; and these Americans are *the best that I ever saw*. They *mow four acres of oats, wheat, rye, or barley* in a day; and, with a cradle, lay it so smooth in the warths, that it is tied up in sheaves with the greatest neatness and ease. They *mow two acres and a half of grass* in a day, and they do the work well. And the crops, upon an average, are all, except the wheat, *as heavy* as in England. The English farmer will want nothing more than these facts to convince him that the labour, after all, is not so *very dear*.

## A HISTORY OF AGRICULTURE

“The causes of these performances, so far beyond those in England, is first, the men are *tall* and well built; they are *bony* rather than *fleshy*; and they *live*, as to food, as well as man can live. And, secondly, they have been *educated* to do much in a day. The farmer here generally is at the *head* of his “boys,” as they, in the kind language of the country, are called. Here is the best of examples. My old and beloved friend, Mr. James Paul, used, at the age of nearly sixty to go at *the head of his mowers*, though his fine farm was his own, and though he might, in other respects, be called a rich man; and, I have heard, that Mr. Elias Hicks, the famous Quaker Preacher, who lives about nine miles from this spot, has this year, at *seventy* years of age, cradled down four acres of rye in a day. I wish some of the *preachers* of other descriptions, especially our fat parsons in England, would think a little of this, and would betake themselves to ‘work with their hands the things which be good, that they may have to give to him who needeth,’ and not go on any longer gormandizing and swilling upon the labour of those who need.”

Farm wages from the settlement of the colonies down almost to the Civil War ran about the same so far as can be told from the scant and fragmentary statements regarding them. For example, a bushel a day was the payment for cradling and grinding wheat throughout this period, and a bushel of corn was a common wage for a day's work at husking. The money wage was from 25 to 50 cents a day, depending upon the work, and board with cider, rum, or whiskey thrown in at times of heavy labor. Such laborers as were hired, and they were few, were mostly native born. Irish, English, and German laborers, who came to the country in thousands during the nineteenth century, were poor “hands” as all New York farmers seem to agree. They objected to the long hours, and could not perform the varied tasks which native born workers, obliged from childhood to practice 20 different employments, would do with equal dexterity. Toward the middle of the nineteenth century farm wages began to creep up. In the 1850's farmers complained of the high wages demanded. Mowers of hay asked from 75 cents to \$1.00 a day for cutting about one and one-half acres. The average cradler and binder wanted the same, and the cradler would not cut more



than three acres a day. Dairying and livestock farming, with a more diversified field system, was at this time making farming a little more profitable. As a rule in New York women were not seen working in the fields, assisting, if at all, only in harvest time. The women folk in German families, the Pennsylvania Dutch, and southerners were called upon for field work more often than were the women from Yankee families. In these families women also milked the cows, but the woman in the Yankee family did not; the Yankee and his sons must always "pail" the cows.

Slavery, as has been said, did not fit well into New York agriculture. Throughout the colonial period, slaves were commonly used by Dutch and English alike as household servants and for light work. In 1800 it was estimated that there were 15,000 slaves in the State. A good many settlers came to western New York by way of the Susquehanna, and those from Virginia and Maryland brought slaves with them. Thomas Helms, from Maryland, who settled in Wayne county in 1800, brought with him 80 slaves to help clear his land around Sodus Bay. Col. Peregrine Fitzhugh, also from Maryland, brought 40 slaves with him to Sodus Point. The Rose and Nicholas families, large land holders in Ontario and Seneca counties, brought their slaves with them from Virginia. Archibald and Zebedee Beall, from Frederickton, Maryland, brought a considerable number of slaves into the town of Phelps, Ontario county. The list of slave holders in western New York could, of course, be greatly enlarged. When slavery came to an end, the negroes remained in the North, but seldom as farm laborers. It does not appear that an Indian could ever be persuaded to work on the farm of a white man. Now and then he was driven to menial labor to sustain himself, but in such an unhappy event complained and suffered shame and fear lest his people find him working. To an Indian, menial labor was ever a disgrace, and idleness an inborn privilege. One of the most vigorous of all human animals, the American Indian could not be domesticated.

Renters of land always have been common in New York agriculture, and in all parts of the State the tenant farmer has ranked in all respects with the land holder. From the beginning of agriculture in New York down to the present, the terms upon which

land is rented have varied less than the prices of labor, the value of land, or the selling price of produce. Agricultural land in New York State has almost never been rented for a money rent, and everywhere is commonly let on shares from year to year. Now, as in the past, if the owner of the land furnishes seed, tools, and animals, his share of the produce is two-thirds or a little less; if the tenant supplies animals, tools, and seed, the land owner receives one-half of the produce. These terms vary a little in accordance with the soil, the crop, and the distance from market, but in general they hold for most parts of the State. It is true that before the Revolution, when there were an unusual and very abnormal number of large land grants made to individuals, attempts were made to establish tenant farming on the basis of money rentals, but in these tracts land nearly always remained uninhabited and uncultivated unless the share system of tenantry was practiced or the land could be rented for a long term of years at a very nominal sum.

In 1802, the Rev. John Taylor was sent from Deerfield, Massachusetts, on a missionary journey through the Mohawk and Black River Valleys in central and northern New York. He made many agricultural observations, and the following one on tenantry is as true now as it was in 1802:

“From Turin, we came into Leyden, where Boon made a settlement. This place does not appear to be very flourishing. The people are poor, and too much of ye land is leased. The Americans never can flourish when on leased lands—they have too much enterprise to work for others, or to remain tenants—and where they are under the necessity of living on such lands I find that they are greatly depressed in mind, and are losing their animation.”



## CHAPTER XVII

### LIVESTOCK INDUSTRIES

**W**ITHOUT beasts of burden agriculture must always remain exceedingly primitive; without them products of the soil cannot be produced in sufficient quantities to supply food or to enter into commerce. The backs of men and transportation by boat might suffice for trade, but there must be a beast of burden for the arts of agriculture. There must be, also, beasts to provide storehouses for food; where agriculture is poorly served with animals for food it must be supplemented by the chase.

Of the various domesticated beasts used by mankind, there can be no question but that the horse has served best in the development of civilization. It of all animals has been used most in the past in the arts of peace, and it has been by far the most useful of any on the sanguinary fields of war where men have fought in the progress of countries. Often its flesh has furnished food. In the present stage of civilization, however, it is probably true that the horse could be more easily spared than the cow or perhaps the sheep, since inventions using steam, gasoline, and electricity have largely done away with the need for the strength and speed of the horse. But three centuries ago, when American colonies were in the cradle, the horse was indispensable to civilization.

In North America for a century after settlements were made, there was a pitiful scarcity of horses. They were imported in every ship bringing over colonists, but the losses at sea were always large and when an importation did reach land it was extremely difficult to find food and shelter. Dutch settlers in New Netherland brought the first horses to New York. Colonial records mention both Dutch and English horses, the former for farm work and the latter for riding. Eastern New Yorkers relied upon this animal much more than New Englanders or earliest

## A HISTORY OF AGRICULTURE

farmers in central and western New York, who found the horse in these regions difficult to maintain and oxen preferable for most agricultural operations.

Early European dwellers in New York had greater difficulty in providing horses with food than any other domesticated animal. The horse, they soon learned, cannot long endure fasts. It also demands for its keeping an amount of care required by no other farm animal. Good health requires that the horse must be sedulously curried and brushed, as every farmer knows. The effect of grooming on the horse's skin is not wholly a matter of cleanliness and augmentation of beauty; brushing, currying, and rubbing react upon the nervous tone of the animal and increase his endurance, vitality, and general usefulness. A horse brought in from the pasture must have a few days of assiduous grooming before he is worth much for the road or the farm. A settler in the forest seldom had time to give this animal the care needed to make a worth while beast of burden, whereas oxen subsisted fairly well on rough foods and required little grooming.

The lack of horse power was a great hindrance to colonial agriculture. The slow-moving ox, used at the time in all European agricultural communities, was for two centuries the chief beast of burden on American farms. The substitution of the horse for the ox in the first half of the nineteenth century was the beginning of commercial agriculture in America. Two men, one to drive a pair of oxen, and one to hold the plow, could turn but a half acre or thereabouts from sun-up to sun-down, but one man with a pair of horses could plow two acres a day, and in time, with a gang-plow, one man with horses could turn four acres. The change from the slower to the faster animal speeded up agriculture and its allied industries nearly as greatly as has the still faster tractor and automobile in recent years. It was the substitution of the horse for the ox that enabled American farmers to expand their operations and to subdue the vast expanse of the country's farm land.

Not much attention was paid to horse breeding in the colonies. Two native breeds, however, were developed before the Revolution, both of which became common in New York and a source of considerable income to the farmers of the State. Horse breeders





MESSENGER

The great fountain-head in America of the Messenger blood  
*Currier & Ives Print*





## LIVESTOCK INDUSTRIES

in Rhode Island brought forth the Narragansett pacers, and the Pennsylvania Dutch bred the Conestogas, splendid draft animals. The Narragansetts were a small, hardy breed, fleet of foot and easy to ride. Gentlemen farmers in every part of the North kept a few of these pacers for their own use, and horse raisers grew them in considerable numbers for exportation to the West Indies where they brought good money from sugar planters. Conestoga horses were of extraordinary large size, easy to keep, and well adapted to both farm and road work. Teams of this breed, most often hitched to Conestoga wagons, did most of the hauling and freighting in the Middle Atlantic States. The breed was of English origin, but the Dutch Mennonites along the banks of Conestoga Creek brought them to a high state of perfection.

The first conspicuous landmark in the development of the horse in America was the importation of a Thoroughbred, "Messenger," from England to Philadelphia in 1788. Messenger was the sire of American trotters, and his importation marked the beginning of trotting horses for the world. Looking back upon the event now, one may say that when this splendid animal landed on the Atlantic seaboard the event was a start towards hundreds of millions of dollars in American horse flesh. Messenger gave direction at once to the improvement that was to take place in horses in the New World. For a century to follow, American breeders were to use most of their skill in breeding a new type—the trotting horse.

The term "thoroughbred" is often used as a contrasting word with "half-blood" or "grade-horse," but to men who know horses the Thoroughbred is as definite a breed as Clyde or Percheron. The breed originated in England by crossing strains of horses of oriental blood, animals developed and improved by centuries of breeding and selection. American Thoroughbreds were early imported from England, but Messenger, in 1788, was the first good animal of this breed brought to the country and in the history of the horse in America is the favorite of all. The Thoroughbred has been bred throughout its centuries of evolution for the saddle, carriage, and race course. He is too tall, lithe, light, and nervous for farm uses. American roadsters, driving, cavalry, and trotting horses are mostly of this breed. Thoroughbreds have been much used in the improvement of several other

breeds. The Trotter is an offshoot of the Thoroughbred, selected for the trotting gait.

The Standardbred is another strain begot by the illustrious Messenger, and is the only American horse family to attract marked attention and demand abroad. Orange county, New York, is the cradle of the Standardbred. The conception of a "light harness horse" first came to mind in this region with Goshen as a center where light-harness roadsters were trained and quartered. Here, and on the race tracks and driving roads of New York City and Long Island, the sentiment for trotting races had its inception. The Standardbreds branch into the Hamiltonians, Abdallahs, Mambrinos, Wilkes, and a score of other lines to the dire confusion of the present writer who knows little of the breeds of horses. Another line of the Standardbred family, not a descendant of Messenger, was the Morgans.

The founding of the Morgan family, with Justin Morgan as the sire, was a second landmark in the breeding of American horses. This stallion was bred and the Morgan family developed in Vermont, and almost from the sire's advent in 1793 the breeding of Morgan horses became an important industry in this State. This great stallion derived his name from a Justin Morgan who at one time owned him but where and when the horse was bred and what animals were his sire and dam are not certainly known. Justin Morgan was a rather small horse, weighing a little over 900 pounds. He was a dark bay, with black legs, mane and tail; head small, lean, and long, with broad forehead; ears small and rather wide apart; nostrils very large; lips, close and fine; back short; shoulders and rump long; and loins very broad and muscular. His legs were close jointed, short, thin, wide apart, and well muscled. He was a very fast walker and in trotting his gait was low and smooth and his steps short and nervous. He was not a fast horse and never made and probably could not have made a good record in harness, but his offspring were splendid roadsters and many of them performed exceptionally well on the trotting track.

Still another conspicuous landmark in the history of the horse in this State, and in the world for that matter, was established when in 1849 Hamiltonian, a Standardbred, was born at Sugar Loaf, Orange county, New York. The breeder of Hamiltonian





SUN BEAU

The world's largest money-making race horse. Bred by W. S. Kilmer,  
Binghamton, N. Y.



MAN O' WAR

The turf's greatest idol







## LIVESTOCK INDUSTRIES

was Jonas Seeley, but the stallion was shortly sold to William M. Rysdyk, Westchester county, and when he had obtained greatness he was always known as "Rysdyk's Hamiltonian." Possibly no horse of any breed or period or country has excited so much interest or represented such vast sums of money in his descendants as Hamiltonian. This famous horse begat 1,333 offspring, some 40-odd of which became great performers on the race track and great sires of speed. Of the sires of trotting horses that have 100 or more standard performers to their credit, all trace back to Hamiltonian. Hamiltonian is described as being a beautiful bay in color, with black legs; mane and tail black and full; he was higher over the rump than over the withers; shoulders oblique and strong; withers low and broad; hind quarters possessing powerful muscles which in his sons and daughters made them great trotters; fore quarters and hind quarters were connected with a long and perfect barrel, so small at the two ends that he seemed to be very poorly proportioned. In action, his motion was frictionless, with a gait peculiarly his own which he transmitted to his descendants.

Horse running has never been very popular in the northern part of the United States. A running horse is essentially a gambling implement, while betting at trotting races, though somewhat in vogue, is not so popular. Gambling, at its highest, belongs to the reckless life of mining communities or to rich aristocracies, such as exist in Europe. Betting on horses in America was carried on chiefly by the southern gentry and later by northern millionaires. There seems to have been little racing, running, or trotting in the Puritanical North until the trotter became popular. The first trotting performance in America of which we have record is that of Yankee at Harlem, New York, July 6, 1806. From then on down to the present time we have had a continuous procession of great trotters and pacers in the country, New York and Kentucky taking the lead in breeding stables and race tracks.

There was one early attempt in western New York to breed running horses, but it came to nothing. In 1798, Charles Williamson, the audacious visionary in charge of the Pulteney Estate, constructed a race track in Bath, the city of his dreams, and imported running horses. Williamson believed at the time that

Bath was to rival Philadelphia, Baltimore, and New York City as a great inland commercial port on the headwaters of the Susquehanna, and his race track and running horses were but one of the many projects to attract people to the new town. Later, the breeding of running and jumping horses was begun in the Genesee Valley, encouraged by the energetic and progressive Wadsworth family. The Genesee Valley in its early history was referred to as the "Granary of the State," but when the cultivation of grain was driven to the wall in the region by competition from the West, its farmers turned to horses, and the "Granary of the State" became the "Blue Grass of the North." By the middle of the nineteenth century, the Genesee Valley had renown through the nation for its fine horses, a reputation it maintains down to the present time.

Sir William Johnson, at Johnson Hall in Fulton county, did much to improve livestock in the Mohawk Valley. Johnson was fond of all beasts of the field and as early as 1745 began the importation of a stud of road and riding horses, Irish hunters all, which gave impetus to the rearing of this breed throughout the whole Mohawk Valley. A little later, he seems to have become interested in draft horses and brought over mares and stallions of a breed which he called "Suffolk." The services of the imported sires of these two breeds were given without charge to his tenants and for a very nominal sum to his neighbors. Soon the Mohawk Valley had a reputation for well-bred animals which brought purchasers from other settlements and other states to the great betterment of horse breeding in the whole country.

There seems to have been no movement to breed the heavy horses of Europe for draft work in America until quite the middle of the nineteenth century when both Percherons and Clydesdales were imported in large numbers. The popularity of the Percheron draft horses was very largely due to the remarkable stallion Louis Napoleon and his get. He was imported in 1851, although there are records of other Percherons having been brought to America in earlier years. The first importations of Clydesdales to the New World were made in 1842 in Canada, and beginning about 1880 many thousands of both sexes of Clydesdales were brought to America.





PEYTONA AND FASHION IN THEIR GREAT MATCH FOR \$20,000 OVER THE UNION COURSE, LONG ISLAND, MAY 13, 1845. WON BY PEYTONA.

Currier & Ives Print





## LIVESTOCK INDUSTRIES

Something might be said about several other breeds of horses—Arabs, Hunters, Shetlands, Coach horses, and the draft breeds of Great Britain, Belgium, and France are all to be found in New York—but the history of these and other breeds in America is not intimately connected with New York agriculture.

Probably there were mules in the New World before Washington's time, but it was Washington who popularized this animal in Virginia and the South, whence they were dispersed in small numbers to the North. From someone in the Revolution, Washington learned about asses and mules, and came home from the war filled with enthusiasm for jacks, jennies, and their crosses with the horse. He wrote to Spain to procure permission to buy a jackass of the best breed. The King of Spain took the opportunity to send the great American general two jacks and two jennies. One of the jacks died on the way over. The other three animals reached Mount Vernon in December, 1785. The surviving jack was named "Royal Gift," and soon became famous. Washington was immensely pleased with the animal. Soon Royal Gift was sent on a tour of the South, and Washington records in his diary that the profits of the tour brought him \$678.00, but that the jack came home lame, thin, and debilitated. In a letter to Col. William Washington, a resident of South Carolina, the General wrote, "From accounts which I have received from some gentlemen in Virginia, Royal Gift was most abominably treated on the journey by the man to whom he was intrusted; for, instead of moving him slowly and steadily along first of all he was prancing the jack from one public meeting to another in a gait which could not but prove injurious to an animal who had hardly ever been out of a walk before—and afterwards I presume, in order to recover lost time he was rushed beyond what he was able to bear the remainder of the journey." There are many accounts of the reception Royal Gift received on this tour. At the cry "General Washington's jackass is coming" a crowd always gathered, and we may imagine there were many rich comments upon the animal's shape, size, tail, ears, and voice.

Lafayette learned of Washington's fondness for jackasses and mules, and in 1786 sent him from the Island of Malta another jack

and two jennies. The new jack was named "Knight of Malta." Lafayette's animal was a smaller beast than Royal Gift; his ears measured but 12 inches; he was also more vicious with his teeth and much handier with his heels. It is probable that the modern mule's ability to use his heels is an inherited characteristic from the Knight of Malta. Washington crossed the two strains of asses and obtained the jack, "Compound." Compound had the size and strength of Royal Gift and the activity of the Knight of Malta. From Washington's jacks most of the mules in America have descended. Mrs. Washington complained bitterly of their braying, but to the General the voice of an ass was jubilant, joyous, musical, mellifluous. Washington wrote to Arthur Young, "the mule is a very excellent race of animals, cheap to keep and most willing workers." He bred from Royal Gift draft mules, and from the Knight of Malta beasts for the carriage and saddle. To a friend he wrote, "In a few years, I intend to have no other animals for carriage and saddle." With the patronage of Washington, it is small wonder that the mule immediately became immensely popular all over the country. But it was soon discovered in the North that the animal was not adapted to a cold climate and that he needed the negro as a driver and caretaker to make him efficient.

Whether our bovine servants were first domesticated for the strength of the bulls or the milk of the cows, we shall never know. But soon, no doubt, they were serving a dual purpose. Milk is obtained in small quantities from mares, goats, and asses in one country or another, but the cow alone yields milk in sufficient quantities to add greatly to man's food or at any rate to serve as a foundation of a dairy industry. No one in these days needs be told that milk comes nearly being a complete food and is capable, when taken alone or with its products, of sustaining life. The importance of this addition to the diet of primitive man cannot be measured. A casual look at the races of people seems to show that those using much milk are the strongest physically and mentally, and the most enduring of the peoples of the world. Of all races, the Aryans seem to have been the heaviest drinkers of milk and the greatest users of butter and cheese, a fact that may



in part account for the quick and high development of this division of human beings.

The genus *Bos* is most admirably adapted to domestication. Perhaps of all our larger domesticated animals, horned cattle are most docile and most submissive to man. On the other hand, perhaps they are less well endowed with qualities to make them friends and companions to men. A cow or an ox is stupid, and man does not have the affectionate relations with them he has with the horse, camel, or elephant. A cow is little more than a passive producer of milk, almost devoid of emotions—she lives to eat, drink, and reproduce. In neither sacred nor profane literature are there stories of the cow tending to show the existence of emotions approaching those of human beings that the books of the ages record for the horse.

A great asset of bovines is variability. Perhaps there are greater differences in size, shape, color, flesh, and other characters than in any other farm animals excepting, of course, the dog, which is hardly to be rated with beasts of burden and food producers. There are for this reason more diverse breeds and more distinctive forms in the genus *Bos* than in any other farm animals.

The raising of beef cattle began in New York with the Dutch in New Netherland. As soon as towns were built there was the necessity of animals for the slaughter house, and under the early English a lively trade in shipping salted meat to the West Indies was soon built up. From the very first, oxen were in demand for the plow inasmuch as the slow and patient ox could labor more steadily on the stumpy lands of the new clearings than could the horse, and, as has been said, oxen are much more easily maintained. During all of the colonial period and for some years afterwards, it was a common practice for the dwellers in towns to own their own milch cows and let them roam wild in the streets. Or in towns of any size they were herded by professional herders in commons provided by the community. Such was the case in nearly all of the Long Island towns and somewhat in the villages up and down the Hudson. Cattle were produced on farms only to supply motive power and for the slaughter house until well along in the nineteenth century when dairying began to be carried on as an industry of the home, principally by the housewife.

## A HISTORY OF AGRICULTURE

The dairy industry in New York began in Dutchess, Herkimer, Oneida, and Orange counties in the first quarter of the nineteenth century. Perhaps farmers in these regions were driven to dairying, since the poor system of husbandry practiced had so exhausted the soil that they could no longer compete with western New York in growing grain. By 1850, the dairy region had extended into Madison, Chenango, and Otsego counties, where dairymen were chiefly interested in cheese. In 1834, 6,340,000 pounds of cheese arrived at Albany over the Erie Canal; in 1837, 15,560,000 pounds; in 1840, 18,820,000 pounds; in 1843, 24,334,000 pounds. The building of canals made possible the expansion of cheese making in Jefferson and St. Lawrence counties. New York now led all other states in the production of cheese.

Until after the Civil War most of the butter and cheese made in New York was a home product, the task of the women on the farm. Herkimer county led the way in the quality of cheese produced in the State, and Orange county in butter. The product from these two regions was everywhere regarded as a gauge of excellence. In the discussions of butter and cheese making in reports of the New York State Agricultural Society, on which there are many articles, one cannot make sure just why these two counties produced superior quality. Some ascribed excellence to the pasture, others to the waters, or to the breeds, or the method of making, or the quality of the salt, but reading the articles now with a better knowledge of sanitation than these old writers had it is certain that Herkimer made better cheese and Orange made better butter by reason of the fact that cleanliness was better observed. Perhaps, too, there were fewer immigrants settling in these counties; it took years for newly arrived immigrants from Europe to learn to make good butter and cheese. Dairymen usually owned from 10 to 50 cows, and estimates of amounts of butter and cheese per cow run about 120 pounds annually of butter and from 250 to 270 pounds of cheese. Of equipment there seems to have been little but the most primitive tools that could be put to use to make the two products.

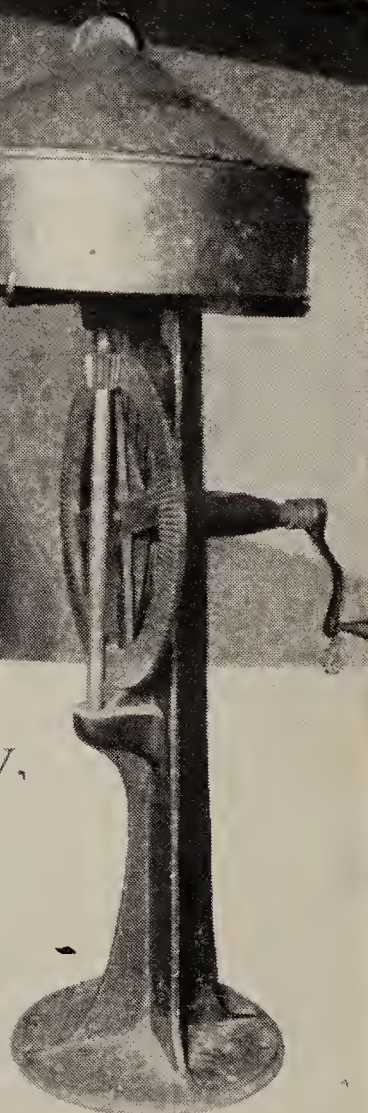
Four outstanding contributions to dairying helped greatly in the development of the industry in New York. The first was the invention of a practical vacuum condenser by Gail Borden in





"Scholar of a great university,  
Servant of a great state,  
Benefactor of mankind  
everywhere."

Glenn Frank  
President, University of Wisconsin



STEPHEN MOULTON BABCOCK







## LIVESTOCK INDUSTRIES

1856; the second was the demonstration that bacteria might be destroyed at a temperature of approximately  $140^{\circ}$  by Louis Pasteur in 1860–64; the third was the invention by De Laval of the first continuous milk separator in 1878; and the fourth was the development of Dr. S. M. Babcock's device in 1890 to determine the fat content in milk. It is difficult now to imagine how the milk industry could be carried on without any one of these helps.

Of Babcock and his test for determining the butter-fat content of milk, New Yorkers may be proud. Stephen Moulton Babcock was a native son, having been born in Bridgewater, New York, October 22, 1843. He was an instructor in chemistry in Cornell University, 1875–77, and the first chemist in the New York State Agricultural Experiment Station at Geneva, 1882–88. It was while at Geneva that he began work with milk which led to the brilliant discovery which bears his name, a splendid example of what science can do for agriculture. It has had the effect of improving dairy herds, in securing the payment for milk on a fat percentage basis, in controlling the processes of manufacturing dairy products, and in regulating the purity of municipal milk supplies, and so has been of inestimable value to dairymen and milk consumers throughout the whole world.

The use of the silo in one form or another dates back to antiquity. About a hundred years ago the Europeans began to make extravagant claims for green fodder from a considerable number of plants preserved in a succulent state. The method is, as every farmer knows, to put these fodders in a chamber from which the air is excluded where they undergo certain changes through fermentation. In 1875, Dr. Manly Miles of the Michigan Agricultural College wrote a book on silos and ensilage which introduced the process and the product to American farmers. Early enthusiasts claimed rather too much for ensilage, and there were many failures so that in 1882 but 92 farmers could be found in the United States who owned silos. Soon after, agricultural experiment stations began work with silos and shortly silage or ensilage was indispensable on every dairy farm. New York farmers were among the first to profit.

Possibly the greatest improvement in dairying in the past 50 years has been the development of better sanitation. This improvement has come about through the application of knowledge which scarcely existed at the time and by new discoveries in bacteriology. Scientists before Pasteur believed that the air was a source of contamination, but why they did not know. They taught rather generally that cooling milk thoroughly and promptly was the best method of improving its keeping qualities. That milk should not be used from sick cows was very well known, but gargety milk and that from tubercular cows was everywhere sold. Few, if they knew, acted upon the knowledge that typhoid fever, smallpox, and other contagious diseases could be spread by milk. Wood was the common container for milk 50 years ago, although writers were calling attention to the insanitary qualities of wood and were recommending metal equipment. But the movement to make the world safe for bottle-babies and milk-drinkers in general dates back no further than 1900.

Even late in the nineteenth century, milk adulteration was almost universally practiced. The removal of cream and the watering of milk seem to have been common practices even by good dairymen, and reputable agricultural papers published information on milk adulteration, as, for example, "A little salt or other ingredient, may be added to watered milk to bring the density up to the pure milk mark;" and "The blueness of milk, produced by either skimming or watering, may be removed by the use of burnt sugar which will give it a rich color, or annatto may be used for the same purpose." Methods of analyzing milk for various adulterations were not well known. Simple tests for specific gravity, comparative color, and estimation of fats by churning were about the only procedures 50 years ago to detect adulteration of milk.

Stock breeders in America were slow in taking advantage of the splendid new breeds of cattle that were being developed in the nineteenth century in England. The agricultural press and the books of English travelers who came to our shores alike spoke of the improvident breeding of livestock even on the best farms. As good an example as any is from the pen of Captain Barclay, who in 1842 published his *Agricultural Tour of the United States and*



## LIVESTOCK INDUSTRIES

*Upper Canada.* He visited all parts of New York, and found one of the best stock farms in the State to be that of Colonel Wadsworth of Geneseo, and yet the best he could say for Colonel Wadsworth's stock was:

"His stock comprehends 400 cattle, steers, heifers, and bulls, and about 2,000 sheep of the Merino breed, and I could not but regret seeing land so valuable covered with stock of so inferior a description.

"The red breed of cattle which I had seen all over the State of New York, Colonel Wadsworth informs me are considered to be Devons. If so, they are much degenerated, being of diminutive size, coarse, and evidently bad feeders, averaging not more than from 25 to 30 stones.

"Colonel Wadsworth's young stock are partly bred by himself or bought in at one year old for about 25s a head; they seem starved and stunted in their growth, and as miserable in appearance as the worst stock on the bleak sides of our Grampian hills, and yet were depasturing land of a quality equal to what with us in Scotland might bring a rent of £5 per acre.

"He has two or three Durham bulls for crossing, but they are so low in condition and so disfigured—appearing as if scalded with hot water—that it is impossible to judge of their properties. He also crosses with half-bred bulls, and the consequence is a heterogeneous mixture which it would puzzle a Wetherell to analyze."

Four breeds of dairy cows are commonly found in New York, all foreigners, Americans so far having produced no worth while kine. By far the most popular dairy cow in the State is the Holstein, and it was probably the first of New York's dairy breeds. There are accounts of black and white cattle having been brought to New Netherland by Dutch settlers in the years between 1625 and the conquest by the English, nearly a half century later. But the first known importation of Holsteins was made by the Holland Land Company in 1794, since which time there have been many. By the middle of the nineteenth century, there were several well-established small herds of this breed in the State. Gerrit Smith Miller, of Peterboro, he who took such an active part in the anti-slavery campaign and gave financial assist-

## A HISTORY OF AGRICULTURE

ance to the various activities of John Brown, imported a Holstein bull and three cows in 1869. To Mr. Miller is largely due the popularity of this magnificent dairy cow in New York. In 1929, the New York State Holstein-Friesian Association dedicated a monument to Miller's herd on which is a tablet which reads as follows:

"Kriemhold Herd  
Holstein-Friesian cattle  
Established in 1869 by Gerrit Smith Miller  
On this farm was born Agoo No. 1 H.H.B. the first cow  
Registered in the first published herd book of the breed.  
On this farm March 10, 1871 Dowager No. 7 H.H.B. completed  
A record of 12681 lbs. 8 oz. milk in a year  
The first yearly production record ever recorded  
On a Holstein-Friesian cow in America.  
In commemoration of these events so fundamental in their  
Contribution to this establishment and development of the  
Great breed of Holstein cattle and of the dairy industry  
In America with its inestimable benefits to humanity  
This tablet is erected by  
New York State Holstein-Friesian Association  
1928"

The Miller herd is still in existence.

Another prominent importer of Holstein cattle was the firm of Smith and Powell, whose dairy farm was near Syracuse. They began their importations in 1885, and, all in all, brought 1,283 head from Holland, which was said to be more than one-eighth of all the Holsteins imported into the United States.

Solomon Hoxie, of West Edmeston, New York, was another Holstein importer and breeder of prominence. Syracuse has long been headquarters for sales of Holstein cattle, although the animal which seems to have brought the most money came from a herd at Elma Center, near Buffalo—Rag Apple the Great—who was sold for \$125,000.

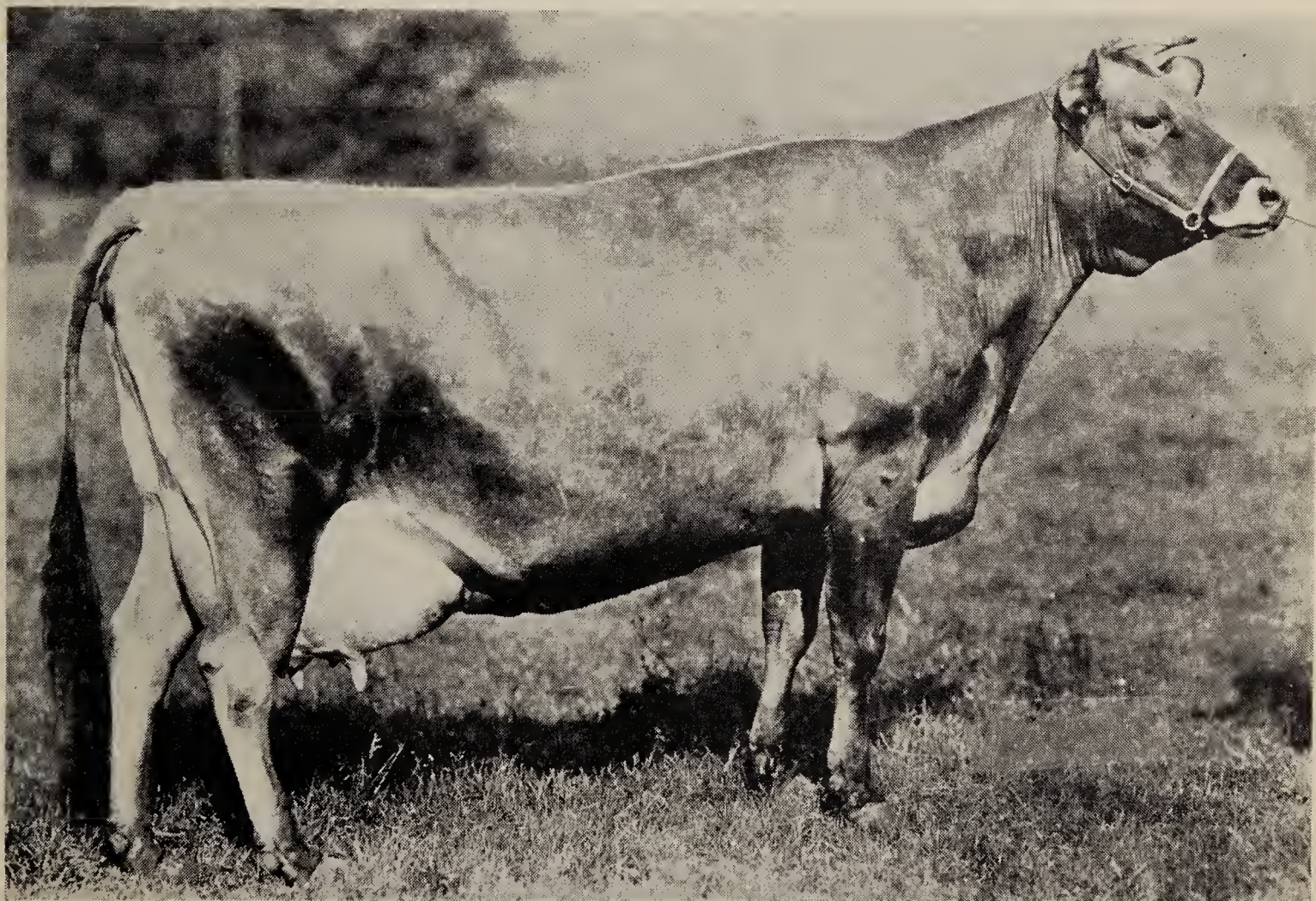
The second most popular dairy cow in the State is the Jersey, the first stock of which was imported about the middle of the nineteenth century from the Channel Islands. With many good qualities to recommend her, it was feared at first that the Jersey could not withstand the cold climate of New York, but she soon





### DAIRY-LIKE MAJESTY

A Jersey bull owned by Maridale Farms, Meredith, N. Y.



### ELISTA'S GOLDEN FERN 3d

Jersey butter-fat champion of New York State, owned by Roy L. Bielby, Rome, N. Y.







## LIVESTOCK INDUSTRIES

demonstrated her fitness for even the coldest winters, one of the good herds of the State having been maintained by Mr. George W. Sisson, Jr., far to the north, in Potsdam. Mr. Sisson, by the way, was chairman of the committee that formulated the rules and regulations for testing Jersey cattle for milk and butter fat and took the lead in the fight for the elimination of the old butter churn test and the substitution in its place of the Babcock test.

Quite like the Jersey in general characteristics is the Guernsey, also from the Channel Islands. Importations of Guernseys to America began about 1840, but the breed made no great headway on this side of the Atlantic until in 1882 Dr. E. Lewis Sturtevant, first Director of the New York State Agricultural Experiment Station, began tests at the Station in which the Guernseys made a most creditable record. Sturtevant's experiments showed cows of this breed to be the most economical producers of cream and butter of the several breeds under test. The Guernsey was lowest in the cost of food to produce a pound of butter fat as well as in the cost of food for maintenance for a year. When the Station published the results of these tests, the Guernsey immediately became popular in the State. At the World's Columbian Exposition at Chicago in 1893, Guernseys stood in the front rank as butter producers and in flavor and color of butter. Again, at the Pan American in Buffalo, Guernseys were awarded first prize for the greatest net profit in the production of butter. But, for some reason or other, the breed has not proved to be as popular in the years that have followed as its sister breed, the Jersey.

Only one of the several minor dairy breeds need be mentioned. Scotch immigrants brought the Ayrshire to the New World about 1800. The Ayrshire is a distinctive red and white or brown and white animal, perhaps rather more commonly found in New York 50 years ago than now. This breed has a splendid reputation for hardiness, and has always been popular on rough, upland pastures in the colder parts of the State in which she was very properly known as the "poor man's cow."

Cattle for the production of beef were common enough in New York a hundred or more years ago, but it does not appear that any particular breeds were raised for the purpose. Later, there were importations of all the standard beef-producing breeds, of

which for this State Shorthorns have been most popular, although there have been many good herds of Herefords. Importations of Shorthorns were made in the eastern part of the United States as early as 1830, and they have been fairly popular as dual-purpose animals through the years that have followed. The Hereford is a later introduction, and has long been bred widely but not commonly in New York. For some years there have been herds here and there of Aberdeen-Angus, Devons, and Galloways, but they have not been important in the cattle industry of the State.

The most renowned cow bred in New York was a Shorthorn, the 8th Dutchess of Geneva, bred by James O. Sheldon, Geneva, New York. She was calved July 28, 1866, and eventually sold for the highest price ever paid for a cow—\$40,600. After having been brought to maturity by Mr. Sheldon, the 8th Dutchess of Geneva fell into the hands of Samuel Campbell, who offered her for sale with others of her breed at New York Mills, near Utica, New York, September 10, 1873. The cow at this time was seven years old and had produced nearly her full quota of calves. She was purchased at the sum named by a Mr. Kello for a Mr. Davies of England, who had formed a syndicate to buy her. She was in calf, and was left at Mr. Campbell's farm, where a few days before her time the Dutchess dropped a fully developed dead calf and soon after died herself—a poor speculation for the English syndicate. Sheldon, the breeder of this famous cow, was president of the State Agricultural Society in 1864.

This sale at New York Mills of pedigreed Shorthorns was possibly the greatest public sale of pure bred cattle held in the world. The herd offered by Mr. Campbell, with whom was associated a Mr. Wolcott, contained the only living Dutchesses which were descended direct from the herd of Bates, the English originator of Shorthorns without the admixture of blood from other sources. The sale was attended by cattle buyers from every part of Great Britain, Canada, and the United States. Almost immediately there came a period of financial depression, and Shorthorns, for dairy purposes at least, began to decline in value the country over.

Probably no other domesticated animal is so especially adapted to the needs of mankind in high altitudes as the sheep. This beast



## LIVESTOCK INDUSTRIES

serves its possessors best by providing warm clothing, but in very cold climates and in sterile lands is of more value than horned cattle as a provider of food. Sheep mature rapidly, breed in less than two years, and multiply prodigiously, so that under suitable environment they produce a very great quantity of mutton. Before the domestication of sheep, human beings who were forced to live in high latitudes had to rely upon furs for covering, and these were not always to be had and at best made insanitary, heavy, clumsy garments. The hair of sheep makes the warmest, strongest, and cheapest cloth for the covering of man in cold climates that any animal provides—at least selection through centuries has made it such.

Sheep husbandry is one of the oldest, most sentimental, and most poetic of the vocations of the world. History, legend, and literature, sacred and profane, contain allusions to shepherds and their sheep. The rearing of sheep and the making of cloth were, without doubt, early parts of agriculture and art. Sheep and shepherds have ever played their part in the Jewish and Christian religions:

“While Shepherds watched their flocks by night  
All seated on the ground,  
The Angel of the Lord came down,  
And glory shone around.”

Astronomy, the oldest of the sciences, had its origin with shepherds, and some of the most familiar names of stars and constellations come from the shepherd's vocabulary. The constellation Gemini, the Twins, received its name because it presided over the lambing season, and ewes generally brought forth twins. The bright star Capricornus, or Capella, has its name from the horn of the sheep or the goat. Aries, the first of the 12 signs of the zodiac, is drawn on the celestial globe in the figure of a ram. For more than 3,000 years men have been looking at the Paschal moon, named from the Passover Lamb.

Every importation of domestic animals to the colonies included sheep. The Dutch brought them first to New York, but it required a century or more nearly two centuries to establish shep-

herding in the New World. Of all livestock this animal is the most difficult to rear under unfavorable environment. Poor shelter, poor food, and the ravages of wolves and other wild animals almost prohibited the rearing of sheep in frontier settlements on the mainland. Conditions were better on Long Island, and the earliest wool-producing industry of the State was established in the islands off the coast where the winters were not overly severe, pasturage was fair, and wild animals were under control. Wool and not mutton was the object of sheep raising on Long Island. Mutton deteriorates rapidly when smoked or salted, and there was no export market for it. From all accounts, there were no distinct breeds, and the typical animal on Long Island was small, long-legged, and narrow in the breast and back, producing only two or three pounds of coarse short wool. Early attempts were made to improve the breed by importations from England, but were unsuccessful because of the drastic prohibition on the part of the English Government which sought to keep wool growing at home.

Outside of Long Island and up and down the Hudson, there were no flocks worth mentioning until as late as 1820, when, attracted by high prices for fine wool, farmers in central and western New York entered into sheep husbandry with the greatest enthusiasm, so great that some farmers turned all their land into sheep pastures to the end that many were without bread for the time. During the 1830's, flocks of 300 to 1,000 sheep were commonly found in central New York where the industry had greatest favor. That which so often happens, a profitable vocation was over done, and in the 1840's prices of wool declined, competition became keener from the West, and New York farmers began to cut down the size of their flocks and to go into dairying until times should be better for sheep.

An interesting side light on sheep rearing is furnished by the private journal of DeWitt Clinton, who visited William Wadsworth in Geneseo in 1811. He says:

"In the tavern there was an advertisement of William Wadsworth, dated Geneseo. He proposes to let out half-blooded Merino rams, to be delivered on the first of September, each ram to be put to fifty ewes, and no more, before the first of October, and to be



## LIVESTOCK INDUSTRIES

returned on 1st of June, unsheared. All the ram progeny to be returned, and he is to have all the ewe lambs except two (from each ram), for each of which he is to pay eight shillings cash, on the 1st September, 1811. He charges nothing for the use of the rams."

It is still a mooted question as to who introduced the Merino in North America. By common consent, Robert Livingston is given credit for having first called attention of the farmers in New York to the value of Merino sheep, whether or not he was the introducer, as he thought he was, of the breed which soon became and long remained the most popular. It is certain that he made an importation of them in 1802. Following Livingston's importation, a mania to stock up with Merinos took possession of the public and lasted until fancy prices dwindled and mismanagement and the neighbor's dogs upset the speculation spree. In 1838, Robert Young, of Delhi, New York, made an importation of Cheviots, but this breed did not make much progress. Christopher Dunn, of Albany, New York, imported Cotswolds in 1832, and the type became rather common among the sheep breeders of the State. About 1855 Hampshire Downs were imported to Long Island by Thomas Messenger, and soon were widely distributed throughout the eastern parts of the State, but were not of much importance for by this time wool growing had begun to decline.

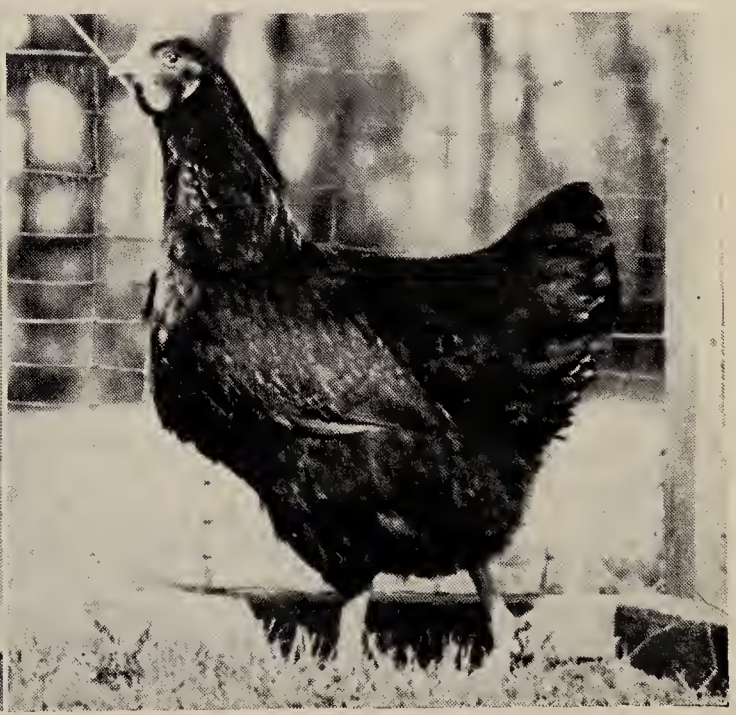
The business of sheep feeding in the winter is a large one in parts of the United States, and periodically has had a spurt in New York when farmers could purchase lambs or yearlings in the west at a low price and feed them for winter and spring markets. For most part, however, winter feeding of sheep is not an agricultural but a slaughter house business, presided over by buyers who feed in barns and sheds in close proximity to large markets. Rearing hot-house lambs has had its day in New York with more or less success, and has helped out many a farmer during the winter months when otherwise he might have been idle. Unfortunately, the hot-house lamb business depends upon very special markets, is easily overdone, and is, therefore, usually too speculative for good farm practice.

Swine came to all of the colonies with the very first Europeans and seemed to adapt themselves to the new environment better than any other domestic animals. In the southern colonies and as far north as Pennsylvania and even on Long Island they were soon running wild in the woods. Poor beasts they were, too, as we have seen from Parkinson's description of them (see page 71), but possibly better bred animals would not have fared so well, since these narrow-bodied, long-nosed, arched-back swine could make speed in the woods, and in an encounter with bears and wolves gave a good account of themselves. On Long Island pigs grew fat on oysters, clams, and ocean refuse, and literally over-ran the island. In forests of acorns and beechnuts, they fared sumptuously. Pork packing for the West Indies market soon became on Long Island and in eastern New York one of the chief money making industries of agriculture, although it does not appear that for 200 years after the colonies were settled farmers anywhere gave swine very much attention. Only an occasional farmer herded them in the autumn and made an attempt to fatten the rangy beasts on corn and buckwheat.

Van der Donk, writing of the swine of New Netherland in 1649, says:

"Hogs are numerous and plenty. Many are bred and kept by the settlers in the neighbourhood of the woods and lowlands. Some of the citizens prefer the English breed of hogs, because they are hardy, and subsist better in winter without shelter; but the Holland hogs grow much larger and heavier, and have thicker pork. In some years acorns are so abundant in the woods, that the hogs become fine and fat on the same, their pork frequently being a hand-breadth in thickness. When it is not an acorn year, or where persons have not an opportunity to feed their swine on acorns, in those cases they fat their hogs on maize, or Turkey wheat, which, according to the accepted opinions, produces the best pork, being better than the Westphalia pork. The heavy pork is frequently six or seven fingers in thickness, and will crack when cut. The persons who desire to raise many hogs, take care to have sucking pigs in April. When the grass is fine, the sows and pigs are driven woodwards to help themselves. At a year old the young sows have pigs. Thus hogs are multiplied, and are plenty in New Netherland."





COCK AND HEN OF PLYMOUTH ROCK, WHITE LEGHORN, AND  
RHODE ISLAND RED

*Courtesy Poultry Department, New York State College of Agriculture*







## LIVESTOCK INDUSTRIES

As agriculture progressed, swine became of more and more importance. By 1800 every farmer kept from half a dozen to a score of pigs to supply his family with salt pork. It had become the most important article of diet in American homes. Meanwhile, the export trade to the West Indies and the provisioning of ships and the fishing fleets with salt pork grew. It was not so common as in earlier days to let swine provide wholly for themselves; some attempt was made to supply them with grain and with kitchen and dairy wastes. The practice of fattening them in the autumn on Indian corn with admixtures of buckwheat, potatoes, peas, and beans grew in favor, and yet there were no good breeds. Down until the beginning of the nineteenth century, foreign observers universally declared American swine to be "the meanest beasts I have ever seen." But a change was at hand. The swine industry was of so great importance to the agriculture of the country that good farmers began to import improved breeds from England.

Much is said in the farm literature of New York about a breed imported at the end of the seventeenth century called the Woburn or Bedford hog. About this time Chester County Whites, from Chester county, Pennsylvania, came to be recognized as a superior and splendid breed, and were soon pretty well scattered over the farms of New York. In 1830, the importation of Berkshires became a speculative fever, these animals selling for high prices and not enough of them to anywhere satisfy the demand. By this time the raw-boned, lank-sided, long-nosed, lean swine of the forest had completely disappeared from the farms of the northern states and all of the good breeds of Europe were to be found somewhere in New York. Of the several breeds of swine that have originated in America, only the Duroc seems to have had its birth in New York. Originally it was a breed by itself, and resulted from crossing a red boar on common sows in Saratoga county, but in course of time the breeders of Durocs and Jersey Reds came together and blended the two types into one under the name of Duroc-Jersey, a name officially adopted in 1883.

The swine industry gained great impetus in the middle of the nineteenth century when the butter and cheese industries reached some magnitude, with skimmed-milk in abundance to feed the

pigs. Berkshires in particular seemed to thrive in dairy regions on the waste milk in butter making and the whey from cheese factories. In 1860, it was estimated in New York that one hog was kept for every four cows. Another stimulus to the swine industry at this time, or perhaps a little earlier, was the establishment of breweries and distilleries where swine were fed on the mash. Sooner or later, however, competition of western swine began to tell on the eastern industry and it began to suffer. Even as early as 1828 farmers in the Mohawk Valley complained that they could no longer advantageously make pork for the Albany and New York markets in competition with western New York where corn was cheap and freights on the canals low. In its turn, the western New York industry succumbed to the competition of the middle west.

“A bird in hand is worth two in the bush” was the theory that impelled the world’s earliest farmers to tame jungle birds. Probably a tantalizing appetite for fresh eggs was the chief incentive to have the bird in hand. Having learned that there was a vast difference between a freshly laid egg and one over-ripe, and that robbing nests in the bush gave him only one “setting,” while he might get several dozen by filching an egg day by day, the half-savage began the domestication of the hen. Meat hardly entered into consideration since it was less trouble to kill wild birds than raise fowls by hand. Cock fighting may have been an early inducement. The Games, mostly fighting birds, are among the oldest domesticated scratching fowls and no doubt our semi-barbarous ancestors held cock-fighting mains, as people do now in all nations, and for the sport needed birds in hand. The first fowls imported in America were Games and cock fighting, especially in the South, was a common diversion. But, through the centuries, egg production has been the impelling motive in improving the hen, while the turkey, goose, duck, and guinea fowl were developed for the table.

“The cock crowed thrice” when Peter denied Christ; therefore the hen was well established 1932 years ago, but 1,000 years before Christ, *The Institutes of Menu* describes cock fighting, so that we may be sure the domestication of fowls dates back to





AMERICAN TURKEY COCK IN THE WILD  
The only good turkey is a dead turkey  
*From an Audubon Print*







## LIVESTOCK INDUSTRIES

remote antiquity. The duck, the goose, and the turkey are late comers to the farmer's barnyard, as may be told from their close resemblance to the wild fowls of their genera. There are several species each in the four genera from which domesticated fowls have been bred, but the number of varieties is not great in any of the four. In the case of the hen, *The American Standard of Perfection*, authority on poultry matters, lists 121 varieties of which only about 100 originated between 1800 and 1900, in spite of the fact that new breeds can be evolved, as Darwin has shown, with astonishing ease.

Notwithstanding early introduction in all of the colonies, so little was done with barnyard fowls that it is almost impossible to find statements about them in early records of resources, farm books, and agricultural publications. From the census of 1840, which seems to have been the first to have taken into account farm products, we learn that the total value of all the poultry in America at that time was but \$9,344,000. New York led all other states with poultry valued at the paltry sum of \$1,153,000. Poultry raising seems then to have been of most importance in New York in the counties of Long Island and up and down the Hudson, presumably because of nearness to New York City markets.

The introduction of incubators and brooders gave new momentum to the poultry industry in America. The artificial hatching of chickens was known to the ancients, and Pliny, in Christ's time, says the Egyptians thus hatched 100,000,000 chicks a year. Incubators were introduced in France and England in the eighteenth century and a century later were brought to the greatest perfection in the United States. The first incubator was patented in this country in 1847, but it was not until the 1880's that the machine came in common use. Cold storage of eggs gave the industry another push, and still another was given by the use of eggs in the arts, as in the making of dyes, in calico printing and for dry plates in photography, for all of which and other trades millions of eggs are annually used.

By and large poultry raising as a farm industry is a feature of contemporaneous agriculture. Until within the memory of men still active on the farm, fowls lived on refuse and food they might

find within a fair range, and such meat, eggs, and feathers as came from them were counted clear gain and usually went to farmers' wives or daughters. If one or several birds died, or if someone robbed the roost of an occasional chicken or turkey "what matter?" The old census reports rated all poultry as "barn-yard fowls," and it is only in the reports of the last 50 years that farmers have come to know of the immense economic returns that poultry livestock give to agriculture.

Poultry historians say that the Games were the first fowls imported to America. Long afterward, breeds of the Asiatic family, as the Brahmas and Cochins; of the Mediterraneans, as the Leghorns and Minorcas; of the English, as the Dorkings and Orpingtons; of the French, as the Houdans; and the Dutch, as the Hamburgs; were imported. The dates of importation and the names of importers are for most part uncertain. Out of combinations of these foreign fowls six American breeds have been evolved. The earliest of these is said to be the Dominiques, but when does not appear. The Javas originated in eastern New York in the 1860's; the Plymouth Rocks in New England in the 1860's; the Wyandottes in Michigan in the 1870's; and the Rhode Island Reds in Rhode Island a few years prior to 1900. It appears from the literature that poultry, until 50 or 60 years ago, were almost breedless—common dunghill fowls—and that the splendid breeds of today to be found in America are quite modern.

Twelve varieties of domestic ducks are found in the yards of duck raisers in this country, one of which, Black Cayuga, originated in New York on the shore of Lake Cayuga. The half dozen breeds of geese recognized by *The American Standard of Perfection* all came from the Old World excepting the American Wild or Canadian which is occasionally found half domesticated. Guinea-fowls were brought from Africa to the West Indies by slavers, thence to the southern states a hundred or more years ago. Six domestic breeds of turkeys are known. The derivation of these breeds is given in the chapter on Indian Agriculture (see page 22). It does not appear that New Yorkers can claim the distinction of having originated any one of the breeds or that the raising of this noble fowl has much of a place in the State's agriculture. There is still much to be done in improving breeds of turkeys, since all are





TURKEY HEN AND HER BROOD. SHE RETAINS HER WILD INSTINCTS

The turkey is our one domestic bird that has never been domesticated

*From an Audubon Print*







## LIVESTOCK INDUSTRIES

half wild. To use a Hibernicism, "the turkey is our one domestic bird that has never been domesticated."

These few paragraphs on poultry livestock are wholly inadequate to do the subject justice. More people in rural New York are interested in poultry than in any other livestock or in any other product of the land. The total value of eggs and fowls per year in the State is enormous, perhaps \$20,000,000 for eggs and \$10,000,000 for fowls. But more, many a farmer in the State began business as a boy with a hen and a setting of eggs. It is history that a turkey and a setting of eggs started John D. Rockefeller's great fortune. A poultry plant is about the smallest beginning a farmer can make, and when he has not turned architect and built castles in the air, success has been as certain, the records of poultrymen show, as in any rural business.

There remain untouched in this scant and fragmentary chapter several divisions of its subject that ought to have attention. New York has furnished much valuable literature, books and periodicals on livestock. Something ought to be said about what the State has done in breeding animals. The feeding of livestock early in the last century began to receive attention the country over, and New York contributed much to the science of animal feeding, W. H. Jordan, long director of the New York State Agricultural Experiment Station, having written several bulletins and books, the results of the Station's research, that were especially valuable. In all having to do with milk, cream, butter, and cheese the agricultural institutions at Ithaca and Geneva have been leaders for a half century. Animal husbandry in the State and Nation is under heavy debt to the College of Agriculture at Ithaca where Professor Hiram H. Wing, from 1888 to 1928 was a teacher, a research worker, and an authority on Holstein-Friesians and dairying. The Department of Agriculture and Markets for the State at Albany has from time to time in the long years of service to agriculture devised and enforced laws and regulations of great value to all of the livestock industries. Its work in the State to eradicate tuberculosis has been especially valuable. Indeed, this chapter is a record of but a small part of New York's splendid achievements in the several divisions of agriculture having to do with livestock.

## CHAPTER XVIII

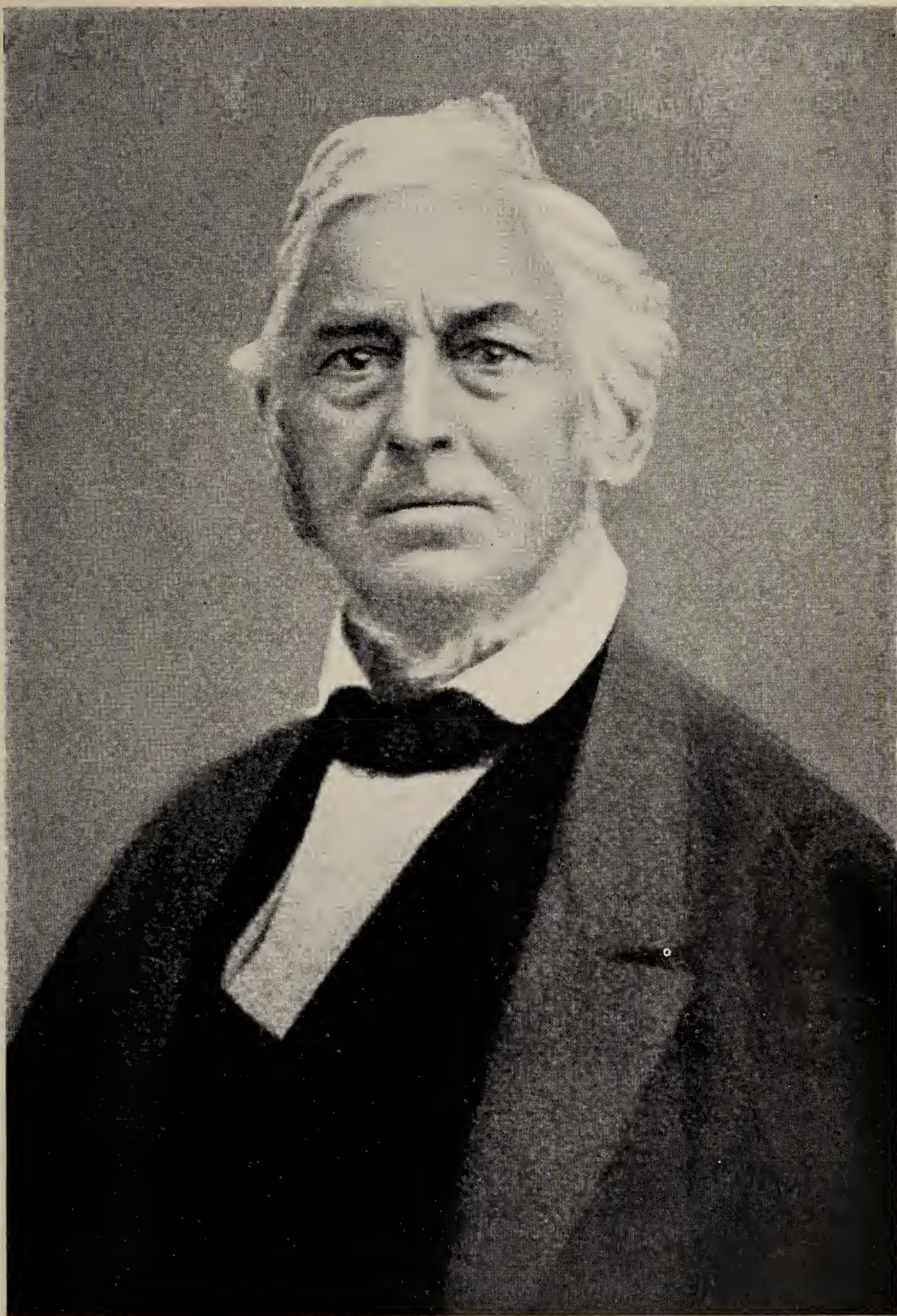
### HORTICULTURE: "AN ELEGANT BRANCH OF HUSBANDRY"

**M**EN plant fruits, vegetables, and flowers only after an advanced stage of civilization has been reached. Fields, herds, and flocks must exist to sustain life at all times; orchards and gardens flourish only in times of peace and plenty. Recognizing its greater perfection, Chancellor Robert R. Livingston, in his first presidential address to the New York State Agricultural Society, spoke of the horticulture of his time as "an elegant branch of husbandry;" and so it continues to be.

Long before the axe of the whites was heard in the forests of America, Indians supplemented their fare of game and fish with wild fruits which grew where orchards now grow. More than two hundred species of tree, bush, and vine fruits were used by them for food—species of plums, grapes, raspberries, blackberries, dewberries, cranberries, gooseberries, huckleberries, and blueberries. Europeans settling in this region of natural orchards, took a lesson from nature, and planted fruit. The tradition is that Governor Peter Stuyvesant planted the first orchard in New York. It is certain that in 1647 he laid out a farm which he called the "Bouwerie" on the site of the present Bowery in New York City. On this farm he planted many fruits and from his orchards were disseminated grafts up the Hudson, thence eventually inland to the limits of the early settlements.

But horticulture, as an industry, did not begin in this State until after the close of the American Revolution when the arts of peace began to flourish with unprecedented vigor under the leadership of Washington and Jefferson. Washington was a practical farmer and an experimenter. Jefferson was preeminent in science in the new country; he included botany and horticulture in his studies. Both men by example and precept forwarded every field





WILLIAM ROBERT PRINCE







## HORTICULTURE

of horticulture; both grew fruits, flowers, and vegetables and worked with their gardeners; both made collections of new and rare plants from home and abroad. Washington made pruning a favorite exercise. Their example was followed by men of wealth and culture in the 13 new states and a little later nurseries began to spring up in every horticultural region.

Probably the first commercial nursery in New York was planted by Thomas Young, Oyster Bay, Long Island, who, in 1768, was awarded the very liberal prize of £10 by the Society for the Promotion of Arts, an organization then prominent in New York City, for the largest number of apple trees in nursery rows. Young's trees numbered 27,123. Possibly the second nursery, or the two may have been contemporaneous, was the Linnaean Botanic Garden, Flushing, Long Island, founded by William Prince a few years before the Revolution, and maintained by four successive generations. The Princes for a hundred years sold fruits in every town and hamlet, almost to every farmer, in the Hudson River Valley. The collection of tree fruits, grapes, and small fruits in their nursery included every hardy variety to be obtained in America or Europe. They made the first attempt in America to breed new varieties, and several of the fruits they bred are still grown.

William Prince, in 1790, planted the pits of 25 quarts of Green Gage plums. These produced trees yielding fruit of every color, and out of them came the Imperial Gage, Red Gage, Prince's Gage, and the Washington plum. In 1828, the Prince Nursery offered for sale 140 kinds of plums and to this nursery belongs the credit of having given plum growing its greatest impetus in America.

Previous to the establishment of Prince's nursery practically all of the peaches grown in America were seedlings. The Princes made much in all of their early catalogs of the fact that their peach trees were budded or "inoculated." The art of grafting and budding is one of remote antiquity and there must have been gardeners among the early colonists who practiced it, but nearly all of the orchards of tree fruits in America were seedlings, "common," or "natural" fruit, until Prince's nursery began to sell budded and grafted trees. In 1771, they offered 29 budded sorts,

but even a century later great numbers of peaches were commonly grown from pits, although other tree fruits were mostly grown as budded or grafted plants.

Another patron of horticulture scarcely less distinguished than the Princes was David Hosack who started the Elgin Botanic Garden in 1801 in what is now a part of New York City. Dr. Hosack's garden covered 20 acres and was in charge of Frederick Pursh, the most noted American botanist in his day. In 1805, this garden contained 1,500 species of plants. In 1811, there was a total of 2,200 species. Dr. Hosack's home was in Hyde Park, near the country home of President Franklin D. Roosevelt. Hosack's country seat comprised 700 acres and in its day was unsurpassed for its orchards and flower and vegetable gardens. Dr. Hosack was well known in Europe, and through acquaintances there introduced many new fruits from European orchards which eventually came into the hands of fruit growers in the Hudson River Valley.

The period from 1825 to 1860 was preeminently one of fruit growing on gentlemen's estates. Well-to-do and wealthy men who had country seats, and most of them did, took kindly to horticulture and brought from Europe to America trained gardeners from whom much was learned about horticulture. One of the leaders among amateur fruit growers in this period was Marshall P. Wilder, of Boston, who grew more than 2,000 varieties of fruit on his 15-acre estate. Wilder wrote much and lectured widely and was one of the founders of the American Pomological Society. William Hamilton, of Philadelphia, was another well-known fruit grower of this time, a connoisseur of pears, who reported in 1840 that he had just brought to America 500 European varieties of pears in one shipment. Well-known country places in New York were those of Chancellor Livingston at Claremont on the Hudson; Livingston Manor, near the City of Hudson; and Montgomery Place, near Barrytown, originally the residence of General Montgomery, which afterwards came into the hands of Edward Livingston. These are three estates in one family name which maintained orchards and arboretums to the great enrichment of horticulture in the Hudson River Valley.





A GROUP OF WESTERN NEW YORK PIONEER HORTICULTURISTS







## HORTICULTURE

There were no commercial orchards in western New York until after the nineteenth century was well started, but there were many excellent home gardens, scattered fruit trees, and a few small orchards in or about the towns. But in proportion to the population of central and western New York, fruit trees and orchards a hundred years ago were few and isolated, although tree fruits were grown long before the region was settled by the whites. John Bartram published a book in 1743 entitled *Travels from Pensilvania to Lake Ontario*, in which he says apples, peaches, plums, and grapes were growing about the Indian villages through which he passed. Sullivan's army came to the Finger Lakes region in 1779 to chastise the Indians and destroyed great numbers of fruit trees in Indian villages about the lakes and in the Genesee Valley.

The first commercial orchard area in western New York was on Grand Island, the largest inland island in the United States, lying in the Niagara River near the City of Buffalo. Lewis F. Allen came from Massachusetts to Buffalo in April, 1827. He brought with him from New York City, by way of the Hudson River and the Erie Canal, an assortment of tree fruits. The only nursery near Buffalo at that time was one kept by Benjamin Hodge who grew a few kinds of apples and pears. Peaches, Mr. Allen writes, were grown from seeds in great quantities by farmers about Buffalo. In 1833 Allen purchased several thousand acres of land on Grand Island and soon after divided the tract into farms on many of which were planted peach and apple trees. In the early forties the orchard region on Grand Island extended for three or four miles along the river shore. Mr. Allen says that for 20 years great quantities of peaches were transported on canal boats and steam tugs to Buffalo wharves where in the early morning they were sold for home consumption and shipment. He recounts that many snug fortunes were made in the peach industry during this time. Eventually, yellows destroyed all of these peach orchards and the fruit industry moved from Grand Island to the mainland of Niagara county, so that in 1880, when Mr. Allen wrote, scarcely a living peach tree of these once large and profitable plantations could be found.

## A HISTORY OF AGRICULTURE

In the 1852 *Proceedings* of the American Pomological Society there is a report by James H. Watts who came to Rochester in 1817. Here, he says, he ate his first peach, and saw many seedling orchards of peaches in the virgin soil of Monroe county. From 1821 to 1825 he reports that growers often threw peaches from their market wagons into the river rather than to sell them for the going price of 20 cents per bushel. He reports that the yellows was introduced into Monroe county from trees imported from New Jersey in the early forties and that for the time being the peach industry was ruined. Still, fruit growing must have included only peaches and apples as its products at this time for as late as 1831 the editor of the *Genesee Farmer*, under the head of "Carrying Coals to Newcastle," laments that pears were brought 400 miles inland from New York City to be sold in the village of Rochester. Small fruits and grapes were as yet scarcely under cultivation.

The New York Horticultural Society was organized September 30, 1818, at the house of Thomas H. Kennedy, Greenwich Street, New York City, with Thomas Storm, President. On March 22, 1822, the Society was incorporated by the Legislature of the State. Prominent members were Dr. Hosack, Messrs. Thorburn, Michael Floy, William Wilson, and A. Parmentier, men to whom the horticulture of the continent must ever be indebted. This, the first horticultural society organized in New York State, still holds meetings, and has probably been in existence longer than any other similar society in America. The Domestic Horticultural Society, with members in the 10 counties about the Finger Lakes, was organized at Geneva in 1828, and was the second such society in New York State. One is much interested in reading the proceedings of these societies. Here is a paragraph from a report of the Domestic Horticultural Society's meeting in Canandaigua in June, 1831:

"At half past two the Society sat down to a dinner in Col. Blossom's best style where in addition to his wonted supply of excellent viands the vegetables and fruits furnished by the Society afforded the most palatable and convincing proof of the utility and success of the horticultural association. The Society was regaled with a choice stock of foreign wines from Col. Blossom's



## HORTICULTURE

cellar and a very good domestic wine from the vineyard of Major Adlum of Baltimore, Maryland. Several respectable foreign gentlemen honored the Society with their presence at dinner. Many piquant and appropriate toasts were drunk and the afternoon passed off with the utmost good feeling, and the company separated with increased zeal in the cause of horticultural improvement."

The third horticultural organization in New York was the Albany Horticultural Society, founded in Albany January 15, 1829. Jesse Buel, noted pomologist, horticultural writer, politician, and legal authority, was the first president. In his presidential address Buel gives farmers the following advice:

"Let a family have a box, in which they may place all their apple cores, cherry, plum, and peach stones. In the fall these seeds may be planted in a bed, weeded the next season, and then, either in the fall or spring, set in a nursery. The second year they may be inoculated, with such kind of fruit as the cultivator may chuse. Thus in five or six years every farmer may be enabled, with trifling labor and expense, to stock his farm and borders of his garden with all the variety of choice fruit that our country produces."

Buel, as has been said, founded *The Cultivator*, one of the first agricultural papers in the United States. He was one of the chief writers and speakers on fruits of the times. After the Princes, he was probably the most successful plant breeder of his day and originated several fruits, two of which, the Tart Bough apple and the Jefferson plum, were long standard sorts.

In September, 1848, a national pomological congress was held in Buffalo, and a little later in the same year the North American Pomological Convention held a meeting at Castle Garden in New York City. Fourteen states and Canada were represented in the Buffalo meeting by 80 delegates from 15 horticultural societies. Representation was quite as wide and as great in the New York City meeting. After much squabbling for two years these two societies consolidated under the name, American Pomological Congress, a name which was changed to the American Pomological Society in 1852. The work of this national organization

was well laid out by Marshall P. Wilder, one of the horticultural geniuses of the times. With respect to the objects he says:

“To compare fruits from various sources and localities, with a view of arriving at correct conclusions as to their merits, and to settle doubtful points respecting them . . . To assist in determining the synonyms by which the same fruit is known in different parts of the country . . . To compare opinions respecting the value of numerous varieties in cultivation, and to endeavor to abridge by general consent the long catalogue of indifferent or worthless sorts at the present time propagated by nurserymen and fruit growers . . . To elicit and disseminate pomological information, and to maintain a cordial spirit of intercourse among horticulturists.”

The Horticultural Society of Monroe County was organized in Rochester in 1830 with James B. Gurnsey President. This organization ceased to exist sometime previous to 1840. In 1847, the Genesee Valley Horticultural Society was organized in Rochester and in 1852 was flourishing with Patrick Barry of Rochester as President. The Fruit Growers Society of Western New York, including all of the counties west of Onondaga, was organized in Rochester in the winter of 1855 with John J. Thomas of Macedon as President. In 1870, the name of the Fruit Growers Society of Western New York was changed to the Western New York Horticultural Society, and in 1918 this organization, with 63 years of splendid achievement to its credit, united with the New York Fruit Growers Association to form the New York State Horticultural Society—an organization still in existence and as ready as ever to accept responsibilities of service as they may fall.

Early in the nineteenth century Bloodgood, Floy, Wilson, Parmentier, and Hogg maintained admirable nurseries near New York City. Buel and Wilson owned nurseries at Albany. Fruit growing was not yet commercialized, but every farmer and every city dweller with a yard was an amateur fruit grower. Commercial fruit growing was to begin a little later, in the thirties and forties, when fruit could be shipped by steam on land and water. This was a period of great expansion of kinds of fruits and in varieties well illustrated by the following comparison. Coxe in his *A View of the Cultivation of Fruit Trees*, published



in 1817, could recommend but 100 kinds of apples. In *Downing's Fruits and Fruit Trees of America*, 1847, 192 kinds are described.

David Thomas, Aurora, Cayuga county, was the pioneer nursery-man in western New York. He came to Aurora in 1805 and began immediately to plant orchards and had in 1830 the most extensive and valuable collection of fruit trees west of the Hudson. From his orchards and nurseries the western counties of the State were stocked with named varieties of fruits. David Thomas was a civil engineer, one of the men in charge of the construction of the Erie and Welland canals. In 1819 he published a book in Auburn called *Travels in the West Country in 1816* in which we have the first good account of the farms and orchards in western New York. David Thomas' mantle fell upon his son, John J. Thomas, later one of the great pomological writers of the country.

Probably the first nursery in Rochester was started by Reynolds and Bateham in 1834. This nursery was sold to Ellwanger and Barry in 1840. Soon Ellwanger and Barry's was the leading nursery on the continent. If western New York had done nothing more for horticulture than to furnish a site for Ellwanger and Barry's nurseries, this region would deserve to rank high in the history of horticulture in America. Another early nursery near Rochester was owned by Asa Rowe in what is now Elm Grove, then South Greece. Between 1840 and 1850 beginnings were made of a network of nurseries in western New York, chief of which were those of Ellwanger and Barry of Rochester, the W. & T. Smith Company, and the T. C. Maxwell & Bros. of Geneva. Soon western New York became the nursery center of the continent.

New York pomological writers have been prolific. William Cobbett, a famous English author and statesman, driven to America as a political refugee, published an American edition of Forsyth's *English Treatise on the Culture and Management of Fruit Trees* in New York in 1802 and in Albany in 1803. This was the most widely read book on fruit growing at the opening of the nineteenth century, at a time when there were few American horticultural books. William Prince, second in the

generation, was the author of the first treatise on fruits in this State, a book published in 1828. William Robert Prince, in the third generation, was the author of a *Treatise on the Vine*, printed in 1830, and with William Prince brought out the *Pomological Manual* in 1831. Bridgeman's *Fruit Cultivator's Manual* was published in New York in 1845, and Floy's American edition of George Lindley's *Guide to the Orchard and Fruit Garden* in New York in 1846. Downing's *Fruits and Fruit Trees of America* appeared in 1845. *The American Vinedresser's Guide* by Loubat came out in New York in 1827, and *The Economy of Kitchen Garden, Orchard, and Vinery* was published by William Wilson in New York in 1828.

John J. Thomas was one of the leading pomologists of his time, and with Patrick Barry and the two Downings may be said to have created the science of pomology in America. He was the author of several good books, at one time a writer for *The Cultivator* of Rochester, and again for the *Country Gentleman* of Albany, and was the author of the *American Fruit Culturist* which appeared in 1846 and ran into 21 editions before his death. Probably more copies of this book were sold than of any other pomological work ever written.

Patrick Barry, noted nurseryman, was also an admirable editor and author. From 1844 to 1852 he was the editor of the *Genesee Farmer*; in 1853 and 1854 editor of the *Horticulturist*, founded by A. J. Downing in 1846, the best horticultural magazine ever published in America. In 1852 Barry published his *Treatise on the Fruit Garden* which appeared in new form in 1872 under the title *Barry's Fruit Garden*. He was president of the State Agricultural Society in 1877.

A. M. Purdy, small fruit grower, was born in Macedon, New York, in 1835. He left this State in his youth for Indiana, but returned in 1865 and spent 40 years on a farm three miles south of Palmyra. He published the *Fruit and Cottage Gardener* for over 25 years, and a book called the *Fruit Instructor*. Purdy was known the country over as a nurseryman specializing in small fruits.

The author has been at pains to discover what fruits nature has chosen to bring into existence in this State. The total number



## HORTICULTURE

of hardy varieties which have originated in New York is astounding. A hasty glance through the fruit books published in the State shows that not less than 500 varieties originated in New York previous to 1850. Not less than 100 apples have been named from seedlings which have sprung up in this State. Eleven of these are major sorts, once or now important. These are Chenango Strawberry, Lebanon, Madison county, about 1848; Early Joe, East Bloomfield, Ontario county, 1800; Esopus Spitzenburg, Esopus, Ulster county, about 1800; Jonathan, Woodstock, Ulster county, about 1800; Lady Sweet, Newburgh, Orange county, about 1840; Melon, East Bloomfield, Ontario county, 1800; Northern Spy, East Bloomfield, Ontario county, 1800; Pimate, Camillus, Onondaga county, 1840; Swaar, near Esopus, Ulster county, before the Revolutionary War; Wagener, Penn Yan, Yates county, 1791; and Yellow Newtown, Newtown, Long Island, before 1750.

Perhaps a score or more pears have been introduced by residents of New York, five of which are noteworthy. These are Bloodgood, Flushing, Long Island, about 1800; Columbia, Westchester county, about 1800; Lawrence, Flushing, Long Island, about 1830; Lawson, Ulster county, about 1800; and Sheldon, Huron, Wayne county, 1815.

Only one peach now grown in New York originated in this State before 1850, Hills Chili, Chili, Monroe county, about 1810; but the three sorts most commonly grown a hundred years ago came from eastern New York. These were Large York, Flushing, Long Island; Morris White, Flushing, Long Island; and Red Cheek Melocatoon, Flushing, Long Island. All were introduced before the Revolutionary War.

No cherry of prime importance came from this region in early years, but nearly as many plums as apples found habitat in New York before 1850, 12 of which have long been and still are noteworthy. These are Duane, Duanesburg, Schenectady county, 1820; Field, Schoharie county, about 1875; Gueii, Lansingburg, Rensselaer county, about 1830; Jefferson, Albany, Albany county, about 1825; Lombard, Whitesboro, Oneida county, about 1820; Smith Orleans, Gowanus, Long Island, about 1825; Spaulding,

the Bowery, New York City, about 1870; and Washington and Imperial Gage, Flushing, Long Island.

The first hybrid grape and one of the first hybrid fruits bred on this continent was a cross between a Black Hamburg and an Isabella grape made by Dr. William W. Valk, of Flushing, Long Island, in 1845, which bore fruit in 1850. The variety was named Ada. The French Revolution drove a wealthy and educated Frenchman, M. Parmentier, to Brooklyn where he planted a garden in which there were many grapes. This garden afterwards became a commercial nursery from which grapes were distributed. Most of Parmentier's grapes were European kinds, and Robert Underhill, at Groton Point on the Hudson, was induced to plant a vineyard of these, but sooner or later all died, leaving Underhill, however, with a consuming desire to plant grapes. This desire bore fruit and Underhill planted a vineyard of Catawbas and Isabellas in 1827. Isabella, found in a garden in Brooklyn, is the only commercial variety of this fruit which originated in New York previous to 1850. These vineyards grew until they covered 75 acres, the product of which was marketed in New York City. This was the beginning of the grape industry in New York.

Another Frenchman, Alphonse Loubat, planted a vineyard of 40 acres at Utrecht, Long Island, of European varieties, but pests and the elements, as he says, "were too much for human exertions to overcome." He ended by planting native sorts. Deacon Elijah Fay was the pioneer grape grower in western New York. He planted the first vineyard near Portland, Chautauqua county, in 1818; and though grape growing did not come into importance in this region until a quarter century later, yet this vineyard was the foundation upon which the substantial grape industry in Chautauqua county was founded. The first plantings of grapes about Keuka Lake, a region which a few years ago was called the Rhine of America, were made by the Rev. William Bostwick of Hammondsport about 1830. He grew Catawbas and Isabellas in a small way and for years was the only grape grower about the lake. The commercial industry in the Keuka region was started in 1853 when Andrew Reisinger planted two acres of Isabellas and Catawbas in the town of Pulteney. Reisinger was a German





NEWBURGH, A DERIVATIVE OF THE AMERICAN RED RASPBERRY







and knew how to make wine. His product was found good, and wine and champagne-making quickly followed as large business enterprises.

The culture of small fruits was hardly known until after the middle of the nineteenth century, and no American raspberries, strawberries, currants, or gooseberries were bred in New York in the first half of the nineteenth century. Many splendid sorts have come into being in the years that have followed. The Lawton blackberry, first under cultivation in America, originated in New Rochelle, New York, about 1831. A notable exception among small fruits is the Doolittle black raspberry. The little town of Oaks Corners, a few miles northwest of Geneva, became famous in 1850 as the headquarters of a new industry. Up to this time the black raspberry had not been cultivated because no good method of propagation was known. H. H. Doolittle of Oaks Corners found that the black raspberry was easily propagated from tips, and went to the fields for plants which he multiplied by his new method. These plants were advertised in papers and pamphlets under the name "Doolittle's Improved Blackcap." Soon a considerable industry sprang up in growing black raspberries for the evaporator, the seat of the activity being Wayne and a part of Yates counties. This business was at its height in the 1890's at which time black raspberry growing in western New York surpassed that of any other fruit except the apple, peach, and grape.

From its 200 and more species of tree, bush, vine, and small fruits, North America has given the world a great variety of new fruits. There are now under cultivation in the United States 11 American species of plums, of which there are 433 pure-bred and 155 hybrid varieties; 15 species of American grapes, with 404 pure and 790 hybrid varieties; 4 species of raspberries, with 280 varieties; 6 species of blackberries, with 86 varieties; 5 species of blueberries, with 23 varieties; 2 species of cranberries, with 60 varieties; and 2 species of gooseberries, with 35 varieties. All told, the number of species domesticated is 45, with 2,226 varieties. The work of domesticating—through selection and hybridization—has been done during the last 75 years, and in this work of producing new fruits New York has ever taken the lead.

## A HISTORY OF AGRICULTURE

The apple is the fruit of fruits in New York, but there was a long period, say from 1825 to 1870, when the pear competed closely for popular favor. Under the inspiration of Marshall P. Wilder, and the Mannings, near Boston, of Hamilton near Philadelphia, and of the Downings on the Hudson, a rage for pears for home gardens set in soon after the earlier date mentioned, and persisted for a generation. In the fifties, commercial fruit growers began to profit by this flair for pears.

In 1853, Patrick Barry wrote, "Sales of pears have been made at Philadelphia this season at prices calculated to give an impetus to their culture. Duchess d'Angouleme pears sold at Isaac Newton's Fruit and Ice Cream Store, on Chestnut Street, for one dollar each, and smaller specimens at seventy-five cents each. Mr. Newton was selling a stock of Vicar of Winkfield pears, on December 2, 1852, at seventy-five cents a dozen, to eager buyers. Our correspondent says he immediately sat down and ordered pear trees for all the vacant spots in his garden. We only add that we think him a sensible man." And again, "Bartlett pears have been selling on the New York markets, at wholesale, for \$9.00 a barrel. One cultivator of this delicious fruit realized at the rate of \$9,200 per acre." A fruit grower still living told the author that as a youth he helped pick and pack Bartlett pears in his father's orchard near Geneva which brought from \$8.00 to \$14.00 per barrel over a period of several years.

The plum, as well as the pear, had its day. The magazines report that a fruit grower near New York in 1865 "sent 1,600 bushels of plums to market for which he received \$14.00 a bushel." Along the Hudson, the plum was a favorite fruit until the late nineties, when black knot became destructive. Later, when the fungus could be controlled, California had taken the plum market. In 1854, the United States Patent Office imported grafts of what is now the French Prune of California and distributed them in the northeastern states, with the expectation that the region would produce prunes enough to stop all importations from France. Soon prune trees were selling for from \$5 to \$10 each, and the fruits for from \$8 to \$12 a bushel. Prunes could be grown cheaply enough in the Hudson River Valley and in western New York, and in quantities to supply



## HORTICULTURE

all America with the dried fruit; but the climate was not favorable for drying; black knot and brown rot took heavy toll; and before drying houses could be perfected and the diseases controlled by spraying, the prune industry became established on the Pacific Coast and New York lost another possible industry.

Until transportation facilities were such that fruit could be brought to the State from the South and California, the forcing of fruit near large cities was profitable. Orchard greenhouses from 1825 to 1880 were nearly as common as greenhouses for growing flowers and much more numerous than vegetable houses. Horticultural magazines and papers gave full directions for growing fruits in pots or in borders in glass houses. The Black Hamburg grape, grown with or without heat under glass, was the commonest fruit forced. Usually the forcing was done in a lean-to glass house, 15 to 20 feet wide and from 50 to 100 feet long, in which the heat was supplied by running the smoke flue throughout the length of the house. Net profits of from \$600 to \$1,000 a year were reported from grape houses of this kind. But besides grapes, apples, pears, peaches, apricots, cherries, nectarines, figs, strawberries, and pineapples were grown under glass. The prices quoted in the magazines seem out of all bounds, but many concurrent quotations show that a greenhouse-grown pineapple could be sold for \$5.00, forced strawberries at \$5.00 a quart, peaches at an average of \$18.00 per dozen, and so on. One of the horticultural magazines reports that, "From a single peach tree planted in a tub, kept in a hothouse, there have been sold, in 18 years no less than \$2,300 worth of peaches, some of them at \$36.00 per dozen, many at \$24.00 to \$28.00 per dozen, and all at an average of \$18.00 per dozen. They were sold mostly in the months of February and March." Much fruit in the early part of the nineteenth century was forced in "dung-heat forcing frames," English fashion. Cheap frames with removable covers heated by fermenting dung or tanbark were used to ripen peaches, cherries, apricots, nectarines, figs, grapes, strawberries, gooseberries, and currants a few weeks in advance of their normal season.

The work of Andrew and Charles Downing is one of the notable landmarks in the history of horticulture in New York.

Perhaps Andrew Jackson Downing is the leading single figure in American horticulture and one of the many geniuses in agriculture that America has brought forth. Charles Downing, not quite so versatile, was during his life a leading pomologist in North America. The two Downings were born in Newburgh, New York; Charles, July 9, 1802; Andrew, October 30, 1815. The brothers inherited a nursery business from their father, and from him received careful guidance which enabled them upon his death in 1822 to carry on a successful nursery business, although the sons were but youths. Soon A. J. Downing left the business to his brother and began a career as a writer on landscape gardening and pomological subjects. His first publication was a treatise on the theory and practice of landscape gardening adapted to North America, published when the author was 26 years of age. Then followed his *Cottage Residences*; and in 1845, *The Fruits and Fruit Trees of America*, which for more than a half century was the best American authority on varieties of fruit. Andrew Downing perished while trying to save other passengers in the burning of the steamer *Henry Clay* on the Hudson, July 28, 1852. The influence of Downing's *Fruits and Fruit Trees of America* has probably been greater than that of any other American pomology in extending the love of fruits and the knowledge of varieties. In this admirable book, Andrew Downing was the real genius, Charles Downing, the conscientious and painstaking student who worked out the details. Charles Downing died January 18, 1885. The Downings gave inspiration to all who lived on the land in the Hudson River Valley to plant fruit and made this region the heart of New York fruit growing from their day to this.

It would be too long a story to attempt to tell of all the horticultural ventures in journalism, forty-odd in all, in New York State. One publication, however, was so notable that it must have a few words. In 1846, A. J. Downing brought out *The Horticulturist*, of which he edited the first seven volumes, with Luther Tucker as publisher in Albany. With the death of Downing, Patrick Barry took over the magazine and edited the eighth and ninth volumes in Rochester, with James Vick as publisher. The tenth volume was continued under the editorship of Patrick Barry and J. Jay Smith in Philadelphia, with a change to New





CHARLES DOWNING



ANDREW J. DOWNING





## HORTICULTURE

York with the thirteenth volume; the eleventh to the fourteenth by J. J. Smith, the seventeenth and eighteenth by P. B. Mead and G. E. Woodward. Later it was continued by Henry T. Williams in New York until 1875, when it was merged with *The Gardeners' Monthly* of Philadelphia. Perhaps it is not too much to say that in its long and useful career, under several of America's most able horticultural writers, *The Horticulturist* is America's most notable contribution to periodical horticultural literature.

THE

# HORTICULTURIST

AND

## JOURNAL OF RURAL ART AND RURAL TASTE.

DEVOTED TO

HORTICULTURE, LANDSCAPE GARDENING, RURAL ARCHITECTURE, BOTANY,  
POMOLOGY, ENTOMOLOGY, RURAL ECONOMY, &c.

EDITED BY A. J. DOWNING,

AUTHOR OF "LANDSCAPE GARDENING," "DESIGNS FOR COTTAGE RESIDENCES," "FRUITS AND FRUIT TREES  
OF AMERICA," ETC., ETC.

---

VOL. I.—JULY 1846 — JUNE 1847.

---

ALBANY:

PUBLISHED BY LUTHER TUCKER.

BOSTON—JOSEPH BRECK AND CO., NO. 51 NORTH MARKET-STREET.  
NEW-YORK—M. H. NEWMAN AND CO., 199 BROADWAY.  
PHILADELPHIA—GEO. B. ZEIBER AND CO.

TITLE PAGE OF THE HORTICULTURIST

The export trade in apples began even before the Revolution, with Benjamin Franklin as its originator. In February, 1759, Peter Collison, eminent English botanist, wrote to John Bartram, one of the first and one of the most illustrious American botanists, "Our Friend Benjamin had a fine parcel of apples come over this year, which I shared." The apple was the Newtown Pippin, the first American fruit to attract attention in Europe. Franklin distributed his parcel of apples at the British Court where they found so great favor that an export trade in apples began at once. The business seemingly grew, for in February, 1773, Peter Collison's son, Michael Collison, wrote to John Bartram, "Your American apples have been an admirable substitute this season, many of our merchants having imported great quantities of them." So began a trade with Europe which in normal years now absorbs about 10 per cent of America's commercial crop of apples.

Orchards until comparatively recent years received little care. They were almost never cultivated, seldom pruned, and sprays were not known until toward the end of the nineteenth century. In 1850, John J. Thomas, New York's eminent pomologist, estimated that: "It costs but 2½ cents a barrel to grow apples, which makes them the cheapest of all foods for man and beast." Commercial fruit growing in the times of which Thomas wrote could hardly be said to exist. It would have been difficult to get named varieties of the several tree fruits for a commercial orchard. P. Barry, writing in 1843, said: "It is hard to make a start because of itinerant grafters who make a business of peddling cions around the country." These peddlers grafted whole orchards with one, two, or many sorts, and often substituted seedling fruits for named varieties. In the earlier days of orcharding the owner cared little, since the fruit was largely used for fermented or distilled drinks for which one sort was about as good as another. Until 1850, in the average orchard, an apple was but an "apple," a pear, a "pear," and a peach, a "peach;" variety names meant little or nothing. A little later, itinerant nursery agents were just as irresponsible, and fruit growers suffered much from the purchase of varieties not true to name.

Pruning in the old orchards was generally neglected. Certainly there was no art and no science of pruning in America until after



## HORTICULTURE

experiment station bulletins began to give instructions, notwithstanding that both the art and the science were well established in European countries. Some of the renowned pomologists of the country taught that pruning was harmful. Thomas Meehan, an esteemed horticulturist and author, wrote in 1868, "pruning has a tendency to check the growth of trees, and should be practiced only to gain some other point." In magazine after magazine of that time one reads the advice "never prune." In all parts of the State orchard trees were headed high to keep the fruit out of the reach of livestock. Generally, the advice was that an apple tree should not be permitted to branch at less than six feet from the ground, and in sorts with drooping branches heading at eight feet was recommended.

It was not until after the establishment of agricultural colleges and experiment stations in the 1880's that orchard management generally received attention. For most part in the earlier days orchards of all kinds of fruits were left in sod and the grass was cut for hay or used for pasturage. A few of the pomological writers advocated tillage, but the great majority of orchard owners stuck to the cheap and easy method of growing trees in sod. Not until long after experiment stations were founded did orchards receive fertilizers of any kind, except manure dropped as livestock pastured the land. The judgment of most of the farm writers, until experimenters demonstrated differently, was that tillage, fertilizers, and even pruning caused trees to over-bear.

A good deal was written in the old days about harvesting and storing fruits. The moon, a hundred years ago, was thought to have a constant and a powerful effect on every phase of plant and animal life. A farmer had to know his almanac well and keep an eye to the moon in everything he did. One is not surprised, therefore, to read from the pen of Samuel Deane, distinguished clergyman, Vice-president of Bowdoin College, and author of *The New England Farmer or Georgical Dictionary*, a practical farmer as well, that the moon should be taken into account in picking and storing apples. His method of harvesting was as follows:

"I gather them about noon, on the day of the full of the moon, which happens in the latter part of September, or beginning of October. Then spread them in a chamber, or garret, where they

lie till about the last of November. Then, at a time when the weather is dry, remove them into casks, or boxes, in the cellar, out of the way of the frost; but I prefer a cool part of the cellar. With this management, I find I can keep them till the last of May, so well that not one in fifty will rot.

"Some may think it whimsical to gather them on the day above mentioned. But, as we know both animals and vegetables are influenced by the moon in some cases, why may we not suppose a greater quantity of spirit is sent up into the fruit, when the attraction of the heavenly bodies is greatest? If so, I gather my apples at the time of their greatest perfection, when they have most in them that tends to their preservation. I suspect that the day of the moon's conjunction with the sun may answer as well; but I have not had experience of it. The same caution, I doubt not, should be observed in gathering other fruits, and even apples for cyder: But I have not proved it by experiments."

Attempts to control insect pests and fungous diseases in orchards were few and almost wholly futile until toward the close of the nineteenth century. No one knew anything about fungi or bacteria, and epidemics of peach yellows, pear blight, apple scab, and kindred diseases were ascribed to "a morbid infection of the air" or a "surcharge of the electric fluid." Infestations of insect pests were believed in Puritanical New England in the early days to be the results of the sins of the people, and as late as the middle of the eighteenth century fasts were held for deliverance from scourges of caterpillars. An early recommendation for controlling insects and fungi made by John Josselyn in 1671 is most diverting. He says:

"Theer fruit trees are subject to two diseases, the Meazles, which is when they are burned and scortched with the Sun; and lowsiness, when the woodpeckers jab holes in theer bark; the way to cure them when they are lowsie is to bore a hole in the main roote with an Augur and pour in a quantity of Brandie or Rhum and then stop it up with a pin made of the same Tree."

Peach yellows was recognized late in the eighteenth century but seems not to have been troublesome until 1800 when peach growers began to complain of some infection from the air which



## HORTICULTURE

caused the trees to die a few years after they had been planted. It was about this time that the first epidemic of yellows appeared, or at least the earliest accounts of it were published in the beginning of the new century. The remedy was, then as now, to cut down and destroy the trees as soon as the malady appeared. The moderns know little more about the cause of this trouble than did the peach growers who had first to contend with it, although orchard sanitation and inspection is better enforced in these days than in earlier times when the contagious nature of yellows was not so generally recognized.

Pear blight was known and described before there were complaints of peach yellows. Orchardists were a little more certain about the cause of pear blight. One and all they were agreed that this disease was a "vegetable apoplexy caused by a surcharge of electric fluid." They were certain of the means of controlling it. Almanacs and papers recommended that iron hoops, old horse-shoes, pieces of wire, any metal that would attract electricity, be hung in pear trees to conduct the "floating electric fluid" from the wood of the tree. The treatment of course failed now and then, to be accounted for by the fact, according to the old writers, that under some conditions "the air is so surcharged with electricity that partial or total destruction is certain." In 1837, the Pennsylvania Horticultural Society offered a prize of \$500 for an effective means of controlling pear blight. The offer brought forth many panaceas such as soaking the ground with soapsuds, wrapping the limbs with a rag sprinkled with brimstone, driving rusty nails into the tree to give it an iron tonic, and physicking the tree with doses of calomel inserted beneath the bark. It speaks well for the intelligence of the committee in charge of the prize that they did not make an award for any of the remedies offered.

For some reason or other, the plum curculio was more destructive all through the last century than it is now, quite aside from the matter of sprays to control it, which fruit growers of today use. In the sixties or seventies jarring the branches to throw the curculio on sheets beneath the tree came into practice, a landmark in the control of insect pests in this country since it is about the first sensible recommendation made in the control of orchard pests. Two treatments had preceded jarring which well illustrate

how little was known about the control of insects. A. J. Downing relates, with signs of approval, that an acquaintance of his had fenced out the curculio by building a tight board fence nine feet high, furnished with a tight gate, about his plum orchard. He says of the trees within the enclosure, "the trees are loaded with plums, very few having been stung by the curculio; while on a few trees outside, 20 feet distant, the crops are literally destroyed"—proof enough! Another New York cultivator "paved the ground beneath the trees, for a space of 9 to 10 feet wide, lengthwise of each row," and thus "saved his plums from curculio."

It remained for Dr. Asa Fitch, distinguished entomologist for the State from 1835 to 1879, and Dr. J. A. Lintner who followed him, 1880 to 1898, notable among the many scientists who have given their services to the agriculture of New York, to study the life histories of injurious insects, describe them, and to teach farmers practical entomology. Dr. Lintner astounded the members of the New York State Agricultural Society in 1886 with the statement that there were 350,000 varieties of insects classified by the entomologists of the world, a large proportion of which were injurious to vegetation, and that of these, 156 varieties attacked the apple only. Contributions of these two men to knowledge of insect pests which injure crops put every fruit-grower and farmer under heavy debt to them.

Real advance in the control of orchard diseases in the United States began in 1868, when William Saunders recommended dusting grapes with sulphur to control rot and mildew, a treatment that brought such remarkably good results that orchardists and experimenters began to see that there might be effective preventives of fungous diseases. Soon after, Millardet, Bordeaux, France, made and used bordeaux mixture for the control of diseases of the grape, and this remedy was introduced into the United States by F. Lamson Scribner, of the United States Department of Agriculture, in 1885. Thus came into use spraying with fungicides for the control of plant diseases, although it took many seasons of spraying to convince fruit growers of its efficiency.

Sometime in the early 1860's, the Colorado potato beetle appeared on eastern farms. Someone discovered that paris green,



dusted on the vines would control the beetle. In the early 1870's LeBarron, State Entomologist of Illinois, recommended the use of paris green for orchards, and in 1872 C. M. Hooker, of Rochester, New York, reported the successful use of paris green in the control of canker worms and currant worms. Hooker mixed paris green with air-slaked lime, plaster, ashes, or flour and dusted the plants. J. S. Woodward, Lockport, New York, eminent pomologist and agricultural editor, seems to have been first to use arsenical sprays on fruit trees. In 1881, he published the following remedy for controlling codling moth: "Apply paris green, 1 pound to 100 gallons of water, by means of a force pump, while the fruit is small and in an upright position." Interest in sprays was small until just before 1900. The first power sprayer was introduced in 1894 to take the place of knapsack and barrel pumps used until that time.

Proper control of orchard insects was long delayed because the idea was fostered, mostly by sentimentalists interested in birds, that the best way to keep down insects troublesome to orchard, garden, and field crops was to encourage birds. It was under this delusion that Dr. E. Lewis Sturtevant, first Director of the New York State Agricultural Experiment Station, happily some years before he became Director of that institution, introduced the English sparrow into the United States, which proved of no use whatsoever in keeping down insects, but became, as everyone knows, a pest to agriculture surpassed only by the robin, crow, and now the starling.

Not much was heard about the need of cross pollination in orchards until a decade or two ago, but most of the old writers had more or less to say about "sterile trees." They attributed the condition to the soil, the climate, or other environmental factors which caused "excessive growth of wood." Yet the need of cross pollination in orchards was recognized more than a half century ago. In 1870, Josiah Hoopes, Westchester, Pennsylvania, studied the pollen of apples and came to the conclusion that the cause of barrenness was due to poor pollen and recommended the planting of mixed varieties.

A. J. Downing, pomological paragon of his time, was sometimes led astray, as what experimenter has not been. We have seen that

he was sadly misled in his approval of a plan to fence out curculio. But he seems to have been taken in by an even more absurd device to prevent damage from hail. Some European invented a hail rod, which he called the *paragrile*, and Downing fell for it. His directions for making a paragrile are as follows:

“To make the hail rod, a rope of straw is necessary; it must be made of ripe wheat straw soaked and twisted, and 25 feet long. Through the center must run a strong twine of tow yarn. The cable is fastened to a stake of the same length, with copper wire, and armed at the top with a point of tin,  $1\frac{1}{2}$  inches thick and 8 inches long, placed in direct contact with the tow yarn. The hail rods should be set about 600 feet apart, on the most elevated points.”

Commercial vegetable growing is an industry of the last 50 or 75 years. Before this period vegetables were grown about homes or in small truck patches, but vegetable crops could not be grown on a large scale until horse tools for the management of the soil were improved; until there were greenhouses to start crops under glass; and until there were better means of transportation than the horse and truck cart. Probably the most extensive area of truck gardens in the State or the United States until recently was Long Island, with its 1,700 square miles, most of the arable land of which for many years has been devoted to the growing of vegetables, particularly cabbage, cauliflower, early potatoes, and cucumbers. Muck-land farming, chiefly devoted to vegetables, is a development of comparatively recent years, although there has long been muck-land husbandry in Orange county and other parts of southeastern New York.

There is now a large literature in books, magazines, and newspapers, devoted to vegetable growing. The first of the books most used by gardeners in New York was *The American Gardeners' Calendar*, published by Barnard M'Mahon in 1806, a work noted before. A little later, in 1823, versatile William Cobbett published *The American Gardener* which went through several editions and must have been in the hands of every progressive gardener in New York. Another notable and valuable book on vegetables was *The Gentleman and Gardener Kalendar* published





A WORKER IN FLORICULTURE, THE LATEST HORTICULTURAL  
INDUSTRY







by Grant Thorburn, an early New York seedsman, in 1821. Still another good gardener's book was *The New American Gardener* written by a New England author, T. G. Fessenden, in 1828, somewhat diffuse since it includes landscape gardening, grapes, small fruits, silk, and some fruits. It, also, ran through a good many editions and seems to have been very popular. After this date, there was a lapse of some years before other authors chose to write about vegetables, chiefly because several gardeners' magazines supplied information. Toward the end of the century, gardeners' books came thick and fast, too many and too recent to have even a brief line.

In seed farming, New York has long stood high in the number of farms and capital invested, and in number of selling houses. An early seedsman, and one who occupied a high position as a grower and seller, as an author, and as a public-spirited agriculturist, was Grant Thorburn, founder of the seed house of J. M. Thorburn and Company, New York. Thorburn was a Scotchman, born in 1773, who came to New York to seek his fortune. He began his career on Nassau Street, selling women's notions. The women began to show a taste for flowers which at the time were generally sold in pots by grocers. Thorburn catered to the demand. In the fall of 1802, he began painting his pots green to attract the attention of purchasers and found that his painted pots sold remarkably well, and soon he was in command of a plant business of considerable magnitude. His customers, he found, wanted to grow plants, and in 1805 he laid in a stock of garden seeds and thus began the first seed store in New York and one of the first in the United States. At first, most of his seeds were imported, but soon he had stimulated the growing of them in America and thus became founder of seed-farming.

Ornamental gardening, the country over, was not much in evidence until the middle of the nineteenth century. It was difficult to have smooth-shaven lawns until the lawn mower was invented, which took place sometime after the Civil War. Besides, there was great poverty in ornamental plants. Still, as one reads the old books, magazines, and catalogs, it becomes apparent that about

the homes of the well-to-do and the wealthy there were brave attempts at making the grounds about the house attractive. The oldest gardens seem to have been hit and miss collections of flowers grown in delightful confusion in which variety and quantity were the chief elements—gardens of Eden. In Virginia and the southern states, where there were slaves and great wealth, ornamental gardening developed early, with a great number of most splendid formal landscapes. Quite early in the nineteenth century a taste for these geometrical gardens spread to the North, and soon there were splendid examples of elaborate private gardens up and down the Hudson, on Long Island, and wherever there was wealth and culture in the State. Such gardening was greatly encouraged by several botanic gardens in the country, of which John Bartram's, established in Philadelphia in 1728, Humphrey Marshall's at West Bradford, Chester county, Pennsylvania, and the Elgin Botanic Garden near New York, planted by David Hosack in 1801, were the most notable.

The story goes that after the War of 1812, when the City of New York desired to celebrate the signing of the Treaty of Peace between the United States and England by a grand banquet, a half barrel of raisins for plum puddings could not be found, nor were there prunes nor dried cherries to be had. The cooks had to fall back on apples, and even apples were hard to come by for the occasion. Commercial fruit growing then did not exist. Nor was there a vegetable nor a florist industry. By way of contrast, figures for fruit, vegetable, and flower growing of today might be given, but figures appal and to set forth the number of millions of acres of tree fruits, small fruits, sub-tropical fruits, vegetables, and flowers now grown in America, the millions or billions of dollars invested in these industries, the thousands of packing houses, canneries, greenhouses, stores, special cars, packages, tin for cans—all the statistics of the industry—could at best but shadow forth the magnitude of this branch of agriculture which in Robert Livingston's time was but an "elegant branch of husbandry."



## CHAPTER XIX

### THE STATE AIDS AGRICULTURE

**T**HE State is now doing three things for agriculture—investigating, teaching, and enforcing agricultural law. Although attempts to support agriculture in these ways date back at least 125 years, yet real, substantial help has not been given half of that time. During this period, like all other human activities, state-supported agricultural institutions have undergone many changes. What were the beginnings and what the chief changes? Let us begin with investigation.

Quite universally historians usher in new eras with the appearance of a genius, the promulgation of a doctrine, or the advent of a notable invention. An era began in America with Benjamin Franklin, who set the feet of his countrymen on the path of science. Most often, also, historians tell us a new era begins, like life, in travail. The birth pangs of science, as of liberty, education, and literature, were a part of the travail of the Revolutionary War. A long and sickly infancy followed. The clergy, the school-teacher, and men who then as now call themselves “practical” were arrayed in unnatural opposition, or at least indifference, to science. Who, then, were its sponsors?

Happily, after peace came, the towering figures of the Revolution chose to cultivate science. Franklin, Washington, Jefferson, Madison, and John Adams were as thrilled by the adventures offered in discovering new phenomena in nature and making inventions in the arts as they were in fighting battles and founding a country. In nearly every state they had followers, few, it is true, but some of them were giants. Lesser minds followed and shared the activities and enthusiasm of the greater.

One of the earliest leaders in science in New York was Governor Cadwallader Colden, a Scotchman, who came to America in 1708, became Surveyor-General and then Lieutenant-Governor. Colden is best known as the author of a *History of the Five Indian Nations of Canada*, 1727, the earliest ethnological work

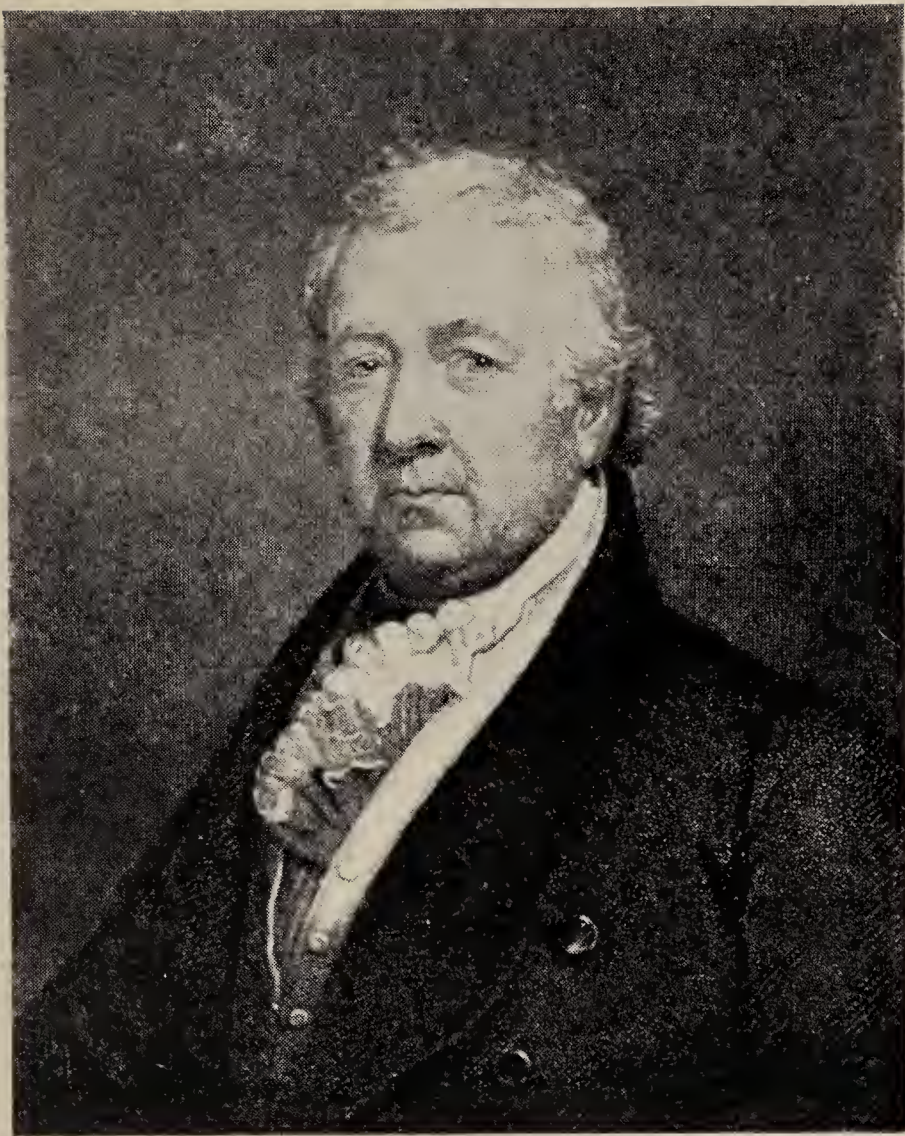
printed in America. It was, however, his study of American botany that brought him into the border-line of agriculture. His *Plantae Coldenhamiae* was the first treatise on the flora of New York. Colden's long life, he died in 1776, had as its vocation statesmanship, as avocation ethnology and botany. His home was a beautiful estate near Newburgh which he called Coldenham.

Doctor David Hosack, a native of New York City, 1769–1835, has the distinction of having founded the first real botanic garden in New York in 1801. His fame rests on his accomplishments in botany and medicine, but hardly less in horticulture. He had many European connections in his scientific work through whom he introduced an amazing number of fruits, ornamentals, flowers, and vegetables which he propagated in his botanic garden and on his estate at Hyde Park. He made the Valley of the Hudson a land of fruits and flowers. Dr. Hosack was long an active member of the New York Agricultural Society, before which he presented many valuable papers.

DeWitt Clinton, mentioned many times in this narrative, must appear again. History gives him a place as a brilliant statesman and an indefatigable champion of internal improvements. He must be set down here as a keen observer and a tireless investigator in natural science, with high rank among early American naturalists. Clinton was New York's Benjamin Franklin—not so good an announcer but a rather better promulgator and constructor. Among his books, papers, and addresses, *Letters on the Natural History and Internal Resources of the State of New York*, 1822, is the best of his several accounts of the agricultural resources of the State.

As one reads the accounts of early scientific workers in New York in contemporaneous publications, he is surprised to find a great number of men who had high rank while living but of whom one hears little now. A notable example is F. Adrian Vanderkemp, a Hollander, living at Olden Barneveld, now Barneveld, New York. Vanderkemp was a zealous student of zoology, with a desire to make his studies profitable to agriculture. He advocated the domestication of the moose and the elk, and offered premiums for essays about them. Members of the New York





SAMUEL L. MITCHILL



DEWITT CLINTON





## THE STATE AIDS AGRICULTURE

Agricultural Society should remember him as the man who in 1795 in an address before an agricultural society in Whitesburgh, New York, first suggested a State agricultural society.

In his time, the best known representative of science in New York was Doctor Samuel Latham Mitchill, who, as we have seen in Chapter VI, in 1792 was appointed professor of agriculture, chemistry, and natural history in Columbia College. In his day he was by far the best known scientist in New York, with a reputation as a poet and humorist as well, withal of so helpful and kindly a disposition that people felt a sense of personal proprietorship in him and his works.

In the *Croakers*, Rodman Drake, the poet, thus addressed him as the Surgeon-General of New York:

“It matters not how high or low it is  
Thou knowest each hill and vale of knowledge,  
Fellow of forty-nine societies  
And lecturer in Hosack’s College.”

Fitz-Greene Halleck, another poet, paid him his compliments in these lines:

“Time was when Doctor Mitchill’s word was law,  
When Monkeys, Monsters, Whales and Esquimaux,  
Asked but a letter from his ready hand,  
To be the theme and wonder of the land.”

The few years that lay between Independence and the end of the century constituted a happy period for intellectual, if not for material, things in the new country. The constitution had been written, ratified, and was now the supreme law of the land. The country had acquired national consciousness. Assurance had come that the new government would succeed. The men who had won the Revolution were in the vigor of manhood and were fully aware and proud of their great achievement. Intelligent and energetic efforts were being put forth in many directions. Nationalism, humanitarianism, science, agriculture, commerce, and art, all had devotees working with fervor for progress in their chosen field. There was a vast impulse to activity of body and

mind. The whole field of science was open to investigation, then considered as but one field.

What passed as agricultural science among the minds interested in it at the end of the seventeenth century may be seen by a glance at the table of contents in the *Transactions* of the Society for the Promotion of Agriculture, 1792–1799. To illustrate, although in small part a repetition of a paragraph in a previous chapter, a few titles and authors are quoted: Gypsous Earths, Chancellor Livingston; Plaster of Paris as a Manure, George Logan; Observations on Hessian Fly, Jonathan N. Havens; A Plan of a Meteorological Chart, Simeon DeWitt; Observations on Lucern, R. R. Livingston; Perennial Grasses, P. Delabigarre; The Excretory Duct of the Feet of Sheep, R. R. Livingston; Vegetation, Tillage, and Manures, J. Miller; Silk Worms, P. Delabigarre; Comparison of French and English Manures, P. Delabigarre; On the Method of Procuring New Varieties of Potatoes, Simeon DeWitt; On Raising Potatoes, Noah Webster; Result of Thermometrical Observations Made at Albany, Simeon DeWitt; Observations on the Smut of Wheat, Ezra L'Hommedieu; Observations on Canker Worm, Samuel L. Mitchill; Effects of Evergreens on Climate, Noah Webster; Thoughts on Lime and Gypsum, Chancellor Livingston; The Effects of Oxygene in Accelerating the Germination of Seed, Robert R. Livingston; On the Effects of Nitre in Promoting the Growth of Corn and Wheat, Robert Johnson; On the Advantages of Domesticating the Elk and the Moose, by Robert R. Livingston; Method of Distilling Ardent Spirits from Potatoes, Ezra L'Hommedieu; Observation on the Manner in which Botworms are Generated in Horses and the Means of Prevention, Chancellor Livingston.

But among the masses there was little knowledge and much less practice in what went as agricultural science at that time. All farmers believed that their crops, animals, and human kind were much affected by the moon. This notion goes back to remote antiquity, and long, long before had brought forth such expressions as "lunatic," "moonstruck," "moon-eyed," "moon calf," and "mooning." Grain, every farmer believed, should not be sown, orchards should not be pruned, reaping should not begin, bushes



## THE STATE AIDS AGRICULTURE

should not be mowed, nor firewood cut, nor pernicious weeds destroyed until the moon had reached its proper quarter and appearance. Whether it lay upon its back or stood upon its horn governed rain and drought. If pork and beef were killed in a certain phase of the moon it would increase in cooking. Wheat sown at the proper quarter of the moon would not "smut." To make hair grow, cut it in the new of the moon. The movements of the tides, everyone knew, were connected with the waxing and waning of the luminary of the night. The influence of the moon on animal and vegetable life was believed to be as great as on the oceans by the educated as well as the ignorant. These fancies of "moonarians" still exist in the lore of intellectually submerged farmers the country over.

The era of laboratory investigation in schools and colleges was not yet at hand, nor did it come in America until long after the middle of the nineteenth century. The science of these earlier days was largely theoretical, but still there were a good many field experiments to substantiate the theories made by advanced farmers. Agricultural reports and books on farming now and then described an experiment with laboratory apparatus of one kind and another to demonstrate this or that theory. The accompanying illustration shows a "research" contrivance made by one Richard Wilcox, as set forth in the *New York Farmer and Horticultural Repository* for 1828. The legend explains the object of the experiment, and the reader needs for full understanding only the meanings of the numerous letters.

With this apparatus the experimenter proved that "the great and governing principles of germination are reduced to heat and humidity," and that "vegetation will progress without the assistance of earth and the effects of manures may be substituted by gas." The author is so carried away by the experiment that he breaks forth in rhapsody:

"Thus, while the vegetable tribes inhale  
The limpid water from the parent vale,  
Their vegetating organs decompose  
The salutary compound as it flows,



RICHARD WILCOX'S APPARATUS TO DETERMINE THE  
REQUISITES FOR GERMINATION

A, The fireplace. B, boiler. C, Steampipe and stopcock. D, Tub to contain seeds or a plant. E, An apple tree. F, A thermometer. G, Rim of metal. H, Container for water. I, Reservoir of water. J, A cask inverted with its lower head open working freely in a larger cask to form a gasometer. K, A metal pot attached to the gasometer to receive filings of metal to form gases. L, A funnel pipe and stopcock through which may be introduced metal, water, and acids to generate gases. M, Frame supporting counter-balance. N, A pipe of communication from the gas holder to the germinating cask. O, Cock regulating the introduction of water. P, An exit pipe.

And, by affinities unknown, dispart  
 The subtile hydrogen, with chemic art,  
 And form bitumen, rosin, wax, or oil;  
 The caloric freed, now bursts the expanding mass,  
 And swells the nacent oxygen into gas;  
 Which, from its inmost cells, each leaflet pours  
 In vital currents through its myriad pores.  
 Great God! How infinitely wise are thou,  
 Let the whole race of mental creatures bow;  
 Thy throne has through eternal ages stood,  
 These works of thine, declare, the living God."



## THE STATE AIDS AGRICULTURE

In spite of a good beginning, in theories at least, in the 20 years that followed the Revolution there is a dreary waste between that time and, say, 1850, in which Americans were almost wholly dependent upon Europe for their science. There were no colleges to train scientists, no grants of money from wealthy men, and no encouragement, financial or otherwise, from the states or the nation for progress in either scientific or technological discoveries. But during this time the natural sciences and their application to agriculture and the arts were making notable progress in Europe.

Agricultural chemists pretty generally agree that Lavoisier, 1743–1794, laid the foundation for their science in experiments made on one of his farms. Sir Humphrey Davy, 1778–1839, extended Lavoisier's studies and in 1813 published his *Elements of Agricultural Chemistry*, a notable landmark. Boussingault, 1802–1887, professor of chemistry in Lyons and Paris, published the results of experiments in chemistry which greatly influenced this science in America as well as in Europe. Many men who became leaders in agricultural science in both continents were trained by Liebig, 1803–1873, in his laboratory in Giessen, Germany. Liebig's *Chemistry in its Application to Agriculture and Physiology*, 1840, and *Animal Chemistry*, 1842, were notable works. Upon this European background, American agricultural science began to build.

The first centers of agricultural science were the several societies whose organization and work are described in Chapter VI. The first educational institution in New York State to offer subjects of instruction on husbandry was, as has been noted in the same chapter, Columbia University, then King's College. Courses were first offered in King's College on husbandry and commerce in 1754. The work languished, however, for lack of money and professors until in 1792 the Legislature of New York gave a grant of money for the establishment of several professorships in the college, among which was one on natural history, chemistry, and agriculture. Dr. Samuel Latham Mitchill, then a noted scientist in the world of learning, was elected to the professorship. What was taught, the number of students, how the chair

was looked upon by the faculty and the public do not appear. Probably the lectureship was not a great success. Certainly other colleges did not take kindly to science and agriculture and it was not until 1824 that science, at least as applied directly to the affairs of life, received recognition in any other place of learning in the State.

In 1824, Stephen Van Rensselaer, eighth patroon of the vast Van Rensselaer barony, at one time or another Regent and Chancellor of the University of the State of New York, Lieutenant-Governor, a member of Congress, and a member and a promoter of the interests of the State Agricultural Society, its President in 1820, founded the Rensselaer Polytechnic Institute at Troy to instruct persons, as he says, "in the application of science to the common purposes of life." At first the Rensselaer Institute gave much attention to natural history, but eventually engineering became predominant and now for many years has wholly occupied the attention of the institution.

Van Rensselaer, in 1820, became acquainted with Professor Amos Eaton, a lecturer on the natural sciences who had received his instruction at Williams College and Yale University. Under the direction and at the expense of Van Rensselaer, Eaton made a geological and natural history survey of the country along the Erie Canal from Albany to Buffalo in 1821-23. While on this work, he was instructed by Van Rensselaer to give a series of lectures, accompanied with experiments and illustrations on chemistry, natural philosophy and natural history. These lectures were of great value to agriculture. Eaton's work was published by Van Rensselaer under the title *An Agricultural and Geological Survey of the District Adjoining the Erie Canal*, Albany, 1824. More than a quarter of a century passed before there was another conspicuous landmark in the history of agricultural science in America. This was the American experiment station which faintly appeared on the horizon in the 1850's.

The Germans first established agricultural experiment stations and charted their course. In 1851 a station was established at Möckern, Saxony, under the direction of Dr. Emil Wolff, and shortly thereafter several others were organized by German farmers. Samuel W. Johnson, a young American, studying chem-



istry in Munich in 1854, saw the work of these institutions in Germany and brought the idea of an experiment station to the United States. In July, 1854, Johnson wrote: "What shall the farmer do? Shall he grope in the dark? No! But let him beware of false lights which are nowadays hanging out in abundance. Let him beware of taking advice from two dangerous characters—the conceited farmer who knows a little science, and the officious philosopher who knows a little farming."

Son of the soil of New York, Samuel William Johnson, "father of scientific agriculture in America and of the movement for agricultural experiment stations in the country," was born near Gloversville, New York, July 3, 1830. When the boy was four years old, the family moved to Deer River, Lewis county, New York, and here as a lad of 18 young Johnson established a small chemical laboratory in his father's woodshed. He studied at Yale Scientific School and then at the Universities of Leipsic and Munich. In 1856 he became professor of analytical and agricultural chemistry in the Sheffield Scientific School of Yale. He was the author of numerous essays and two books. In the first of the two, *Essays on Peat Muck and Commercial Manures*, 1859, he called attention to the value of muck and manures in so forceful a way that farmers all over the country were informed as to their value. His agricultural masterpiece, however, was *How Crops Feed*, 1870, still in print and read everywhere by studious farmers.

America's system of agricultural experiment stations may well be regarded as Johnson's monument. In 1875, through his efforts, the legislature of Connecticut appropriated \$2,800 annually for two years for experimental work in agriculture, to be carried on in the Department of Chemistry, Wesleyan University, Middletown, Connecticut. Thus was founded the first experiment station in the New World. At the end of the two years, the work at Middletown was put on a permanent basis by the establishment in New Haven of an independent institution, the Connecticut Agricultural Experiment Station, of which Professor Johnson was the first director. Other states followed the lead of Connecticut and patterned similar institutions, so that within a quarter of a century every state and territory in the United States had its own experiment station. The directors of many of these Stations were

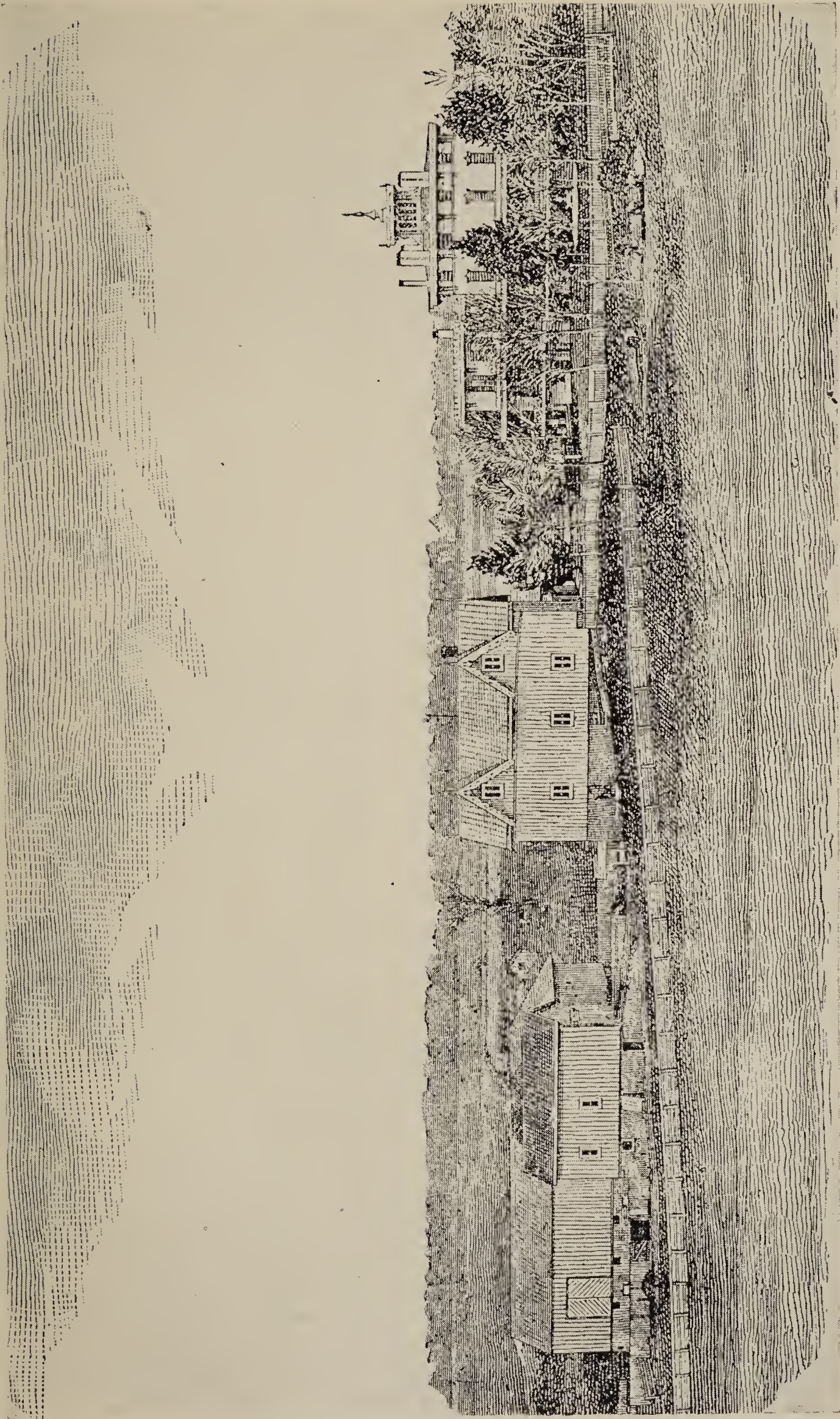
trained under Professor Johnson and upheld his ideals of research in application to practical problems and adherence to high scientific standards.

The New York State Agricultural Experiment Station at Geneva was the fourth such institution in the United States through legislative action and the sixth to organize its work. It is now impossible to name all of the individuals and organizations that were active in calling into being the New York Station or to assign the parts played. Of organizations, the most prominent were the State Agricultural Society, the State Grange, the Central New York Farmers' Club, the Elmira Farmers' Club, and the Western New York Horticultural Society. Besides these bodies of farmers, Cornell University was an active sponsor.

The act of the Legislature establishing the Station became a law June 26, 1880. The board created to govern it consisted of ten members made up of the Governor of the State and the presidents of the State Grange and of several agricultural societies, with two members to be elected by the board. A great variety of plans was considered at its first meeting. Among these was one to have an independent investigational unit; another to make the Station a part of Cornell University; and a third to establish an office at Albany and distribute the experimental work among farmers. Happily it was decided to create an independent institution on a farm. Many locations were proposed, but the choice finally narrowed down to Geneva, Palmyra, and Spencerport. The board visited the three sites and selected Geneva as most suitable. Meanwhile, the State Comptroller declared the law creating the Station defective in that its governing body was self-perpetuating. A new bill was prepared creating a board of trustees consisting of the Governor and nine members appointed by him. This act was constitutional, was passed, and became a law August 15, 1881. Title to the land now occupied by the Station was taken over by the State early in 1882.

The new institution was most happy in its first director, Dr. E. Lewis Sturtevant, of South Framingham, Massachusetts. Dr. Sturtevant was a Bostonian, born January 23, 1842. He prepared for college at Blue Hill, Maine, and in 1859 entered Bowdoin College. In 1861, at the urgent call of the country, he





NEW YORK AGRICULTURAL EXPERIMENT STATION BUILDINGS IN 1882







## THE STATE AIDS AGRICULTURE

enlisted in the Union army and served until 1863 when his soldier's career was cut short by illness. The next landmark in Sturtevant's life is a degree from Harvard Medical School, which he received in 1866. Sturtevant, however, almost immediately turned his attention to agricultural science, and in 1867 with two brothers purchased a farm at South Framingham, Massachusetts, which soon became famous under the name "Waushakum Farm" for a series of brilliant experiments which are still models of conscientious execution.

The policy of the Station was determined by its first director. Dr. Sturtevant set forth clearly in his communications to his board the need of well-established fundamental facts and principles as a basis of farm practice. He called their attention to the possible errors of experimental work of what many in those days talked about as of a "practical character." He set about to learn and to teach his staff how to experiment, to interpret results, and to detect errors in certain classes of experiments, especially those of the field and stable. He insisted that the Station should establish new principles and facts of importance to agriculture; discover and verify the uses of old knowledge in agricultural practice; and acquaint farmers with the new information. His sound and well-balanced policy in scientific and practical inquiry gave the Station from the start high standing among the agricultural institutions of the world.

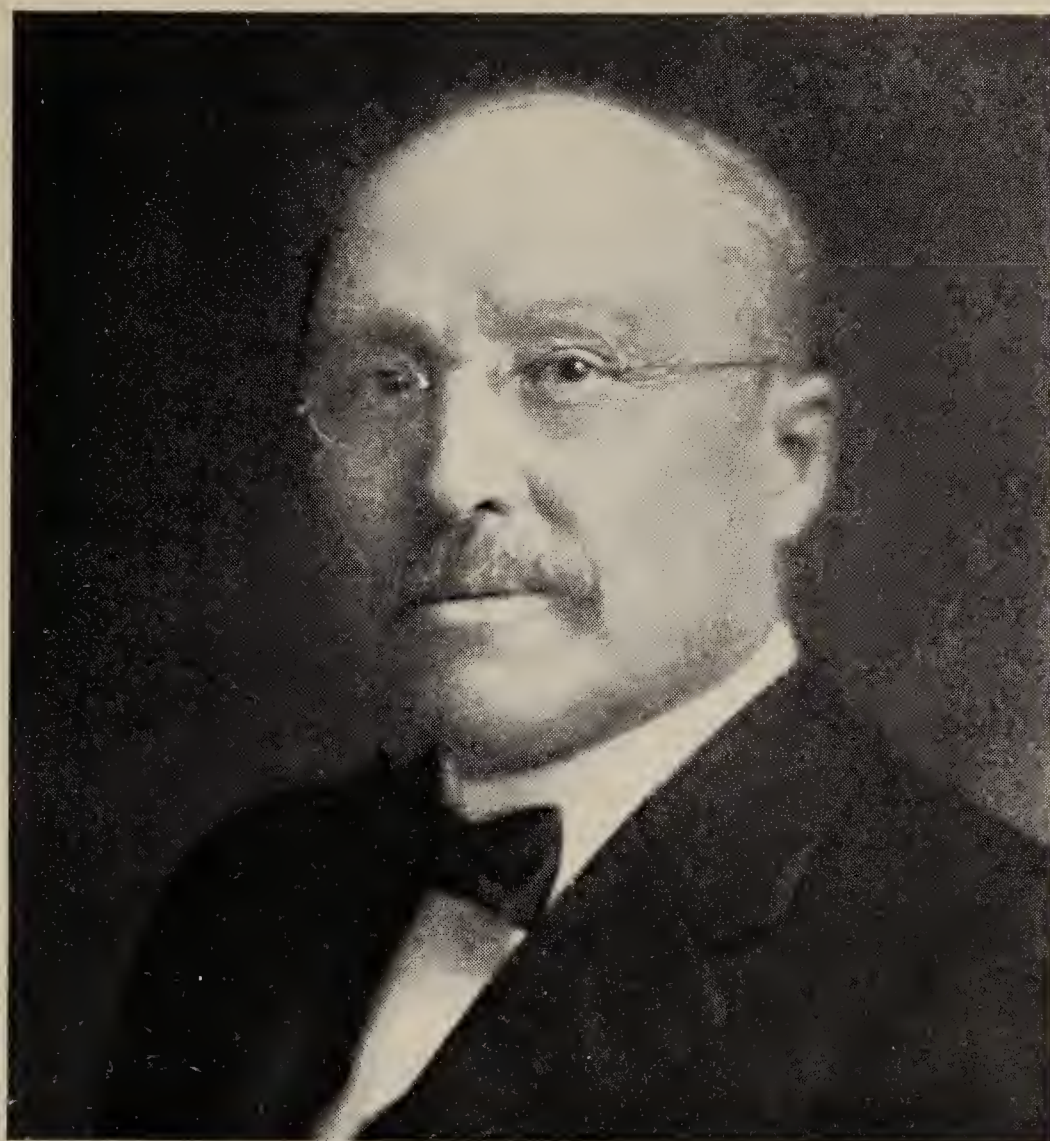
At the beginning the true office of the Experiment Station was but dimly perceived by the farmers of the State. They clamored for free seeds, free plants, demonstrations on private land, and personal service from Station workers. Politicians coveted patronage. Farmers were half-expectant, half-suspicious. Burdens that did not belong to the Station were piled on it, so that the meager funds of the institution were at times almost absorbed by outside activities. Newspapers criticized the Station's efforts as fanciful and impractical. A Buffalo editor wrote of an early report: "It is said that figures do not lie. If this be true, the report of the New York Agricultural Experiment Station contains a tremendous pile of truth." The *New York Sun*, then and for many years after an objector to agricultural colleges and experiment stations, published in March, 1887, the following diatribe against the Station:

"It is enough to make an earnest American despair of the future of democracy in America to see the ease with which a few men, hating to work for their own living and determined to live on the Government, succeeded in putting a law through our Legislature to set them up, with \$22,000 a year income, in the fraudulent business of conducting agricultural experiments to improve New York farming. From top to bottom, the bill, the Station, and its operations have been a fraud on our farmers and taxpayers. The contrivers of the Station had no more care of our farmers than the Washington claim agents had for the heroes who died in battle to save the Union when they put through Congress their pauper pension bill for the benefit of themselves and the relatives of deserters and noncombatants. In the name of New York's insulted farmers and in the name of good government, we demand of the Legislature to abolish the Geneva Agricultural Experiment Station. It is a humbug."

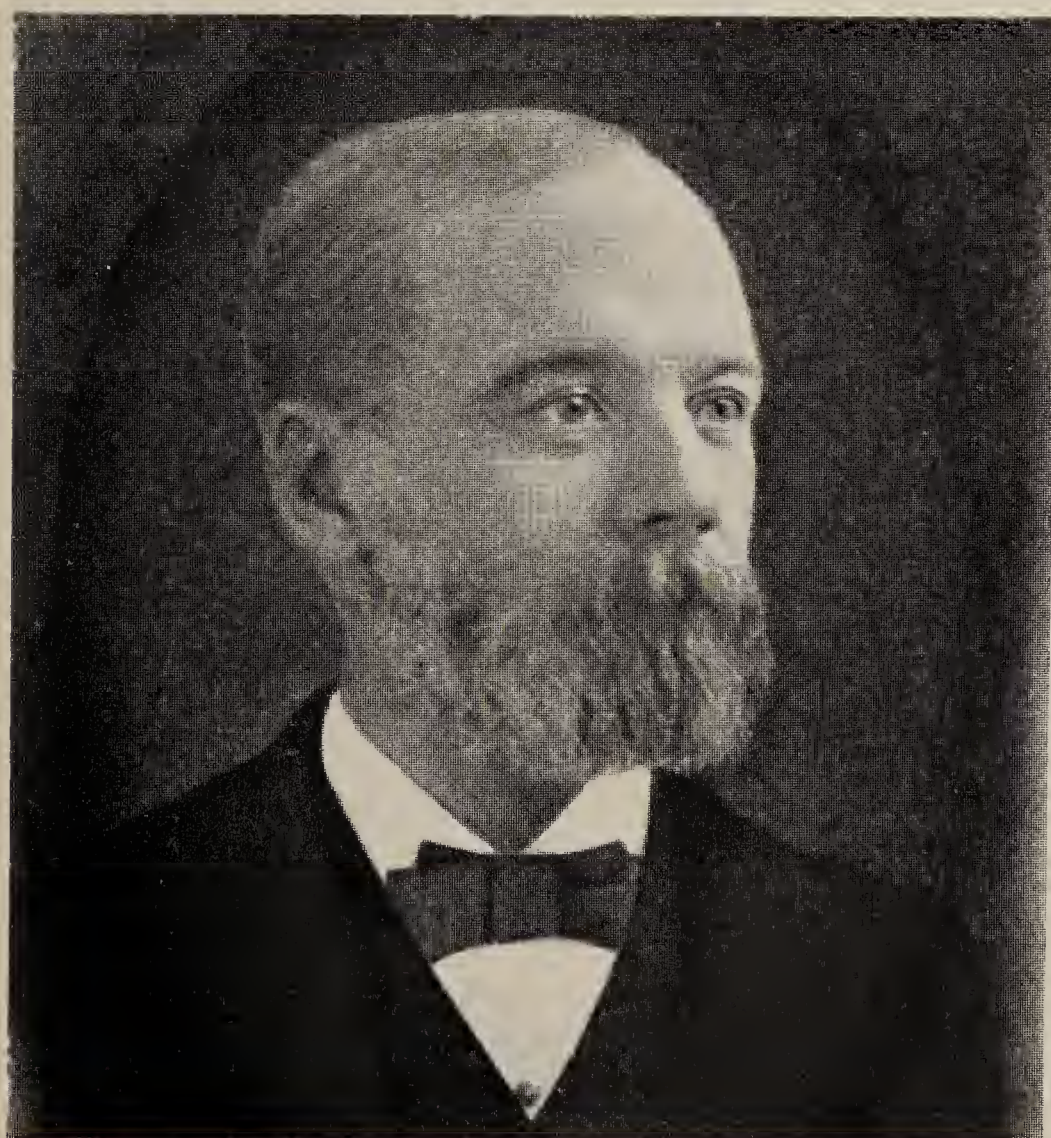
Does it need to be said that the *New York Sun* was a defamer and a false prophet? There were other opponents in the early days of the Station. Farmers joined the press and members of legislative halls in fault-finding. Indeed, the Station's start was full of trouble and more was gathered before the coming of happier days. Sturtevant, the pioneer, served the Station from March 1, 1882, to December 1, 1887, when he was succeeded by Peter Collier for a prosperous time of a little less than eight years; he in turn by Vice-Director Lucius L. Van Slyke for an interim between directors of a little less than a year. On July 1, 1896, Dr. Whitman H. Jordan became director and served 25 years to a day, a quarter century of splendid service during which time the Station made good growth in its physical plant and in efficiency of its work.

Dr. Jordan was a native of Raymond, Maine, born October 27, 1851. He died at Orono, Maine, May 8, 1931. In 1878 he began experiment station work in the splendid training school of the Connecticut Agricultural Experiment Station; next he served four years at the Pennsylvania Station; then eleven years as director of the Maine Station; finally on to Geneva. His career was coincident with the start and development of experiment stations in the United States. He came to Geneva believing





WHITMAN HOWARD JORDAN



E. LEWIS STURTEVANT





## THE STATE AIDS AGRICULTURE

that the most useful work an experiment station can do is to conduct rigidly scientific investigations of agricultural problems. To his insistence upon this fundamental principle and to his exceptional ability in expounding it to his colleagues and to the public is due in large measure the high standing of the Station over which he presided.

To complete the record, the terms of service of succeeding directors are given. Dr. Roscoe W. Thatcher came into office July 1, 1921, and served until October 1, 1927; Prof. Frank B. Morrison followed Dr. Thatcher, serving from October 1, 1927, to October 1, 1928, when his place was taken by the present director, Ulysses P. Hedrick.

That the minds of men work in unison is again exemplified by the several suggestions for the establishment of schools in the State in which agriculture should be taught. Possibly, but not certainly, Simeon De Witt made the earliest plea for such institutions in 1799 when he proposed a school "of practical instruction in the business of husbandry." He clung to the idea tenaciously and in 1819 published a booklet on the subject entitled *Considerations on the Necessity of Establishing an Agricultural College and Having More of the Children of Wealthy Citizens Educated for the Profession of Farming*. De Witt was not particular, but thought the place of learning he had in mind ought to be properly named and says "it may be called an agricultural school, academy, or college, no matter which; but if any importance is to be attached to the name, I would give it the most respectable and call it the Agricultural College of the State of New York." Simeon De Witt was Surveyor-General of the State from 1784 to the year of his death in 1834. He was the founder and long a resident of Ithaca, New York. De Witt was a man of great intellectual attainments, a nephew of General James Clinton and a cousin of DeWitt Clinton, both governors of the State.

New York's great governor, DeWitt Clinton, builder of the Erie Canal, ever ready to encourage agriculture, a friend of improvements of whatever kind in State and Nation, in his Governor's Message of 1818 urged the establishment of a State Board of Agriculture and expressed the hope that a chair of agriculture

might be attached. No doubt he and his cousin, Simeon De Witt, compared opinions of plans. Two more notable supporters of agriculture in New York, out of the many, who would found an agricultural college in New York were Elkanah Watson, who, in 1819, as we have set forth in a previous page, suggested a model farm with a professor of agriculture; and, again, Jesse Buel, with whom the reader is already familiar, in 1823, as a member of the Legislature brought out a committee report favoring a school of agriculture supported by the State.

At its first meeting in 1832, the State Agricultural Society took up the matter of a school. At the second meeting in 1833 a committee brought in a report estimating that it would cost \$57,550 to buy a farm of 400 acres and equip a school and an additional annual sum of \$23,400 for salaries of teachers and board of students. A bill was introduced in the Legislature authorizing the issuance of stock certificates to provide these funds but no action was taken. A second bill in 1835 failed of passage. In 1836, a convention was called which asked the Legislature to establish a school of scientific and practical agriculture, and the Legislature passed an act to incorporate the New York State Agricultural School, a condition being that \$100,000 be raised as a capital stock by popular subscriptions. Those given charge were unable to raise the money. In 1839, the Legislature received 80 petitions with 6,000 signatures, presented by the State Agricultural Society, asking that the State establish an agricultural college.

The State Agricultural Society was reorganized in 1841. The new organization continued the efforts of the old to establish a school. In 1842, a bill was before the Legislature to start a school in each county. In 1843, members of the Legislature attempted to provide money "to endow a college for the purpose of disseminating scientific knowledge of agriculture throughout the State." In 1845, a similar bill came within one vote of passing. In 1849, a commission was appointed to study new proposals. It reported in favor of an agricultural college, but no action was taken. In 1851 and 1852 similar reports were made without action.

Under the leadership of John Delafield, he who helped John Johnson to popularize tile drains, the State Agricultural Society in 1853 secured the passage of an act to incorporate the New



## THE STATE AIDS AGRICULTURE

York State Agricultural College. Delafield was to be the first president but died during the year. With his death the efforts for a college died. It is doubtful whether his plan would have worked, since the Legislature made no appropriation and the Agricultural Society was to raise money by asking for subscriptions for expenses and endowment. The college was to have been located on Oakland Farm, in Seneca county, four miles east of Geneva.

The next active sponsor for a school of agriculture in the State seems to have been William Henry Brewer, a New Yorker, born in Enfield, a hamlet near Ithaca. Brewer was for two years a student of chemistry at the Yale Scientific School, but came home in 1850 to take the presidency of the Oakwood Agricultural Institute near Buffalo. Another promoter was a Dr. Burwell who conceived the idea that if he started a good agricultural school, it might in time grow into a college. He raised money to make a start and engaged Brewer as the first principal. The Oakwood Institute did not last through its first year. "Country boys could not see the use of it and city boys did not like it."

Dr. Amos Brown was the next champion of an agricultural college for the State. Brown was a native of Maine and had successfully founded Gorham Institute in that state as a semi-scientific school. In the early 1850's, Brown concluded to "go west." He fell in with someone who told him about western New York, and Brown concluded that Seneca county was far enough west and settled in Ovid. Brown was a minister, preached in the Ovid church for one summer, and eventually, in 1852, took over a local academy which he hoped to turn into an agricultural school. He got together a faculty which would have done justice to any institution of the kind at that time. Prof. Norton of Yale sent him William Henry Brewer to teach the sciences. Brewer brought with him the idea of scientific education in agriculture and gave Brown some inspiration for such teaching. The two attempted to revive Delafield's college and bring it to Ovid, with the expectation that Brown would be president and Brewer professor of agriculture. To qualify himself, Brewer spent a year in German agricultural colleges, stopped in France for a time, and visited the famous Rothamstead experiment station which a short

time before had been established by Lawes and Gilbert in England. He reached home in 1857 to find that Brown, not too much interested in agriculture, had made no plans for the new college.

In December, 1857, a bill was introduced in Congress for the endowment of colleges of agriculture and mechanic arts. Brown, re-inspired, went to Washington, and found that the first Morrill Bill had been passed by the House. Henry Clay opposed the Morrill Act in the Senate and the bill went over to the next Congress. Brown went from Washington to Albany and got a bill passed by the State Legislature providing for the restoration of Delafield's college with a change of location from Oakland Farm to Ovid. The State was to loan Brown \$41,000 for 21 years with the provision that \$40,000 additional should be raised by subscription. Energetic Amos Brown soon had in hand \$47,000, most of it in subscriptions of \$100. Farmers now thought well of an agricultural college.

Brown brought his trustees together in the spring of 1857 at Ovid but immediately ran into trouble. Two of the trustees were citizens of Ovid, and one of them wanted his son to be president of the new college. In July of the same year, the trustees met again and located the college near Ovid on land now occupied by the Willard State Hospital, a splendid site overlooking Seneca Lake with 2,000 acres of as good land as could be found in the State. Both Brown and the Ovid candidate were turned down, and the trustees elected Judge Samuel Chever, politician and farmer from the eastern part of the State, to the presidency. Chever, it turned out, knew little about farming, nothing about agricultural science, and was too old to learn. He lasted not quite a year, the sum of his accomplishments being the destruction of a magnificent oak forest which he cut down and sold as a product of the farm. The trustees then elected Major M. R. Patrick, a graduate of West Point, to take the presidency. Patrick erected a building and got ready to start the school. The Civil War broke out. Patrick went to the front and became a Major-General in the Army of the Potomac and had no successor. Thus ended New York's first agricultural college.

The next chapter in the history of agricultural colleges in the State centers around the activities of Charles Cook, an enter-



## THE STATE AIDS AGRICULTURE

prising citizen in the village of Havana, now Montour Falls. Cook had a good deal of money and no family. Looking about as to how he could best bestow his fortune, he conceived the idea of endowing a college of agriculture with a suitable piece of land and \$400,000 in cash. Some time previous to this, May 9, 1850, Horace Greeley in an editorial in the *New York Tribune* proposed a "People's College" where students could earn their living. Endowment was to come from \$1.00 subscriptions from the people of the State. The new college was to be located at Binghamton. Cook persuaded Brown to come to Havana, and the two managed to have the People's College transferred from Binghamton to Havana, with Brown in charge. Meanwhile, in 1859, the Morrill Act had been passed by Congress, but Buchanan vetoed it. Brown set diligently to work to revive the Morrill Bill. The bill was passed in 1862. Support was to come from the sale of government lands. New York received 990,000 acres. Brown hastened to Albany and secured the passage of a bill providing that the federal appropriation be given to the college at Havana.

The corner stone for the first building of the People's College was laid in Havana September 22, 1858, before 15,000 people, with elaborate ceremonies and an address by Mark Hopkins, President of Williams College. But the college was never built. Cook was growing old, lost his health, became a little infirm in mind, and quarreled with Brown, who left the college early in the 1860's. Thus matters stood until the winter of 1865, when Ezra Cornell of Ithaca and Andrew D. White of Syracuse were in the State Legislature. Both were anxious to have a college of agriculture and mechanic arts in the State and were discouraged with Cook's and Brown's handling of the People's College. They secured the passage of a bill which provided that unless the People's College could turn over to the State 300 acres of land and \$300,000 in money for an endowment by the last day of August, 1865, the federal appropriation from the Morrill Act should go to Cornell University, as a new institution at Ithaca, endowed in part by and named after Ezra Cornell, was to be called. The People's College could not meet the conditions, lapsed, and the federal appropriation and State support went to Cornell University.

## A HISTORY OF AGRICULTURE

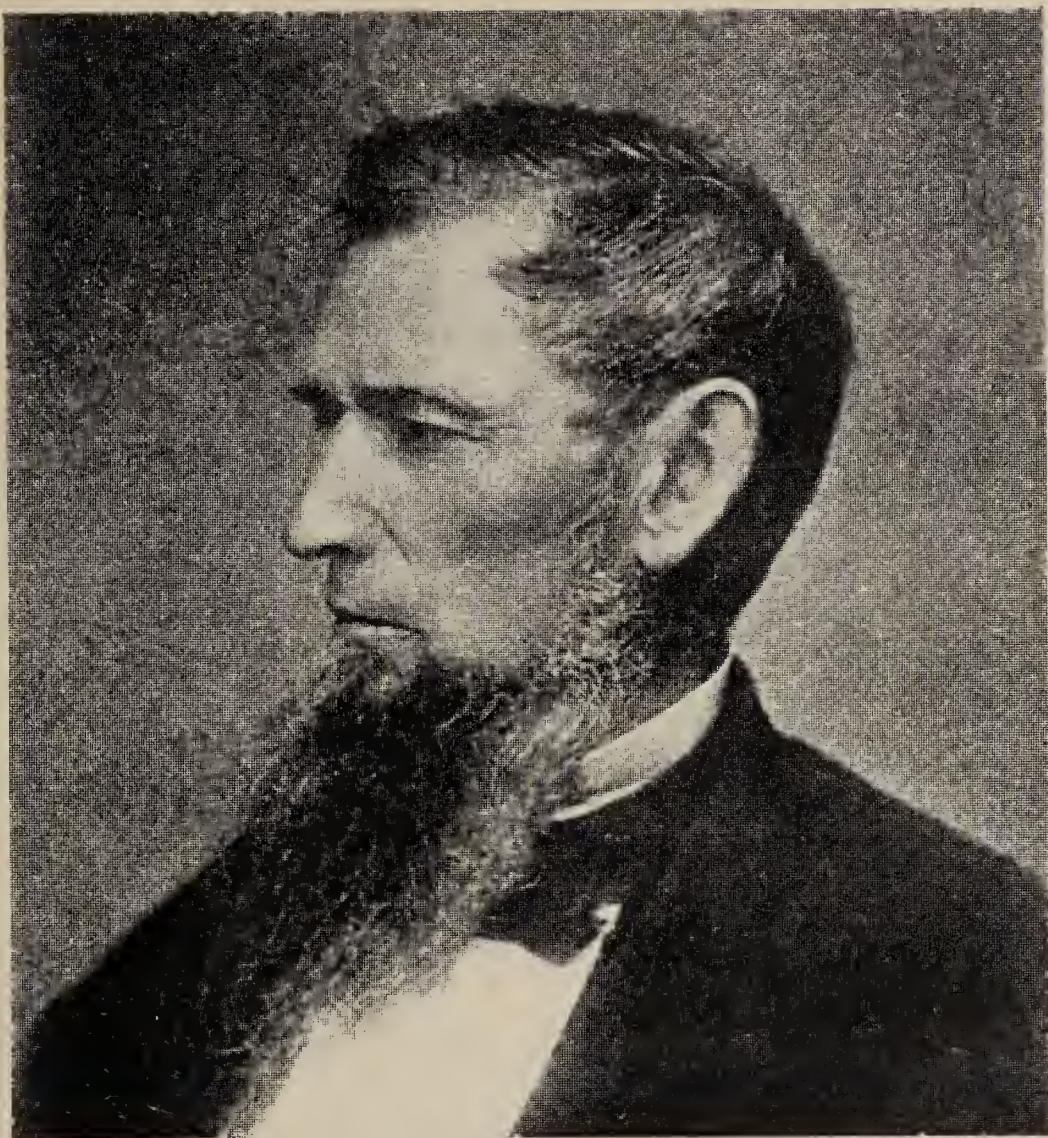
Amos Brown still desired to become the president of a college and applied for the presidency of Cornell University, but he had enemies and had been in too many efforts which had failed and could not be elected. Furthermore, it had been agreed in Albany that when the college at Cornell came into existence, Andrew D. White would be the first president. So he was, to the great advantage of the University, the State, and the whole country. President White, 1832–1918, was the son of a salt maker in Syracuse, studied at Hobart College for two years, from there went to Yale, where he was graduated in 1853, taught for a time in the University of Michigan, came back to New York, became prominent in politics for a year or two, and then in 1867 became the first president of Cornell University, serving until 1885.

Thus it will be seen that efforts to establish an agricultural college in New York covered a period of over 70 years—a long, long time in which men of vision had belief in the necessity of such an institution but could not bring efforts for establishment to fruition. It was not until 1904 that the Cornell College of Agriculture became a State institution and not until 1906 that support for its maintenance came from the State treasury. With marvelous persistence the State's governing agencies resisted the demands of the people for a college of agriculture for 110 years. The reasons for the failure of these attempts may be inferred from a quotation from an address made by President White before the State Agricultural Society in 1868. Speaking of agricultural education, he said:

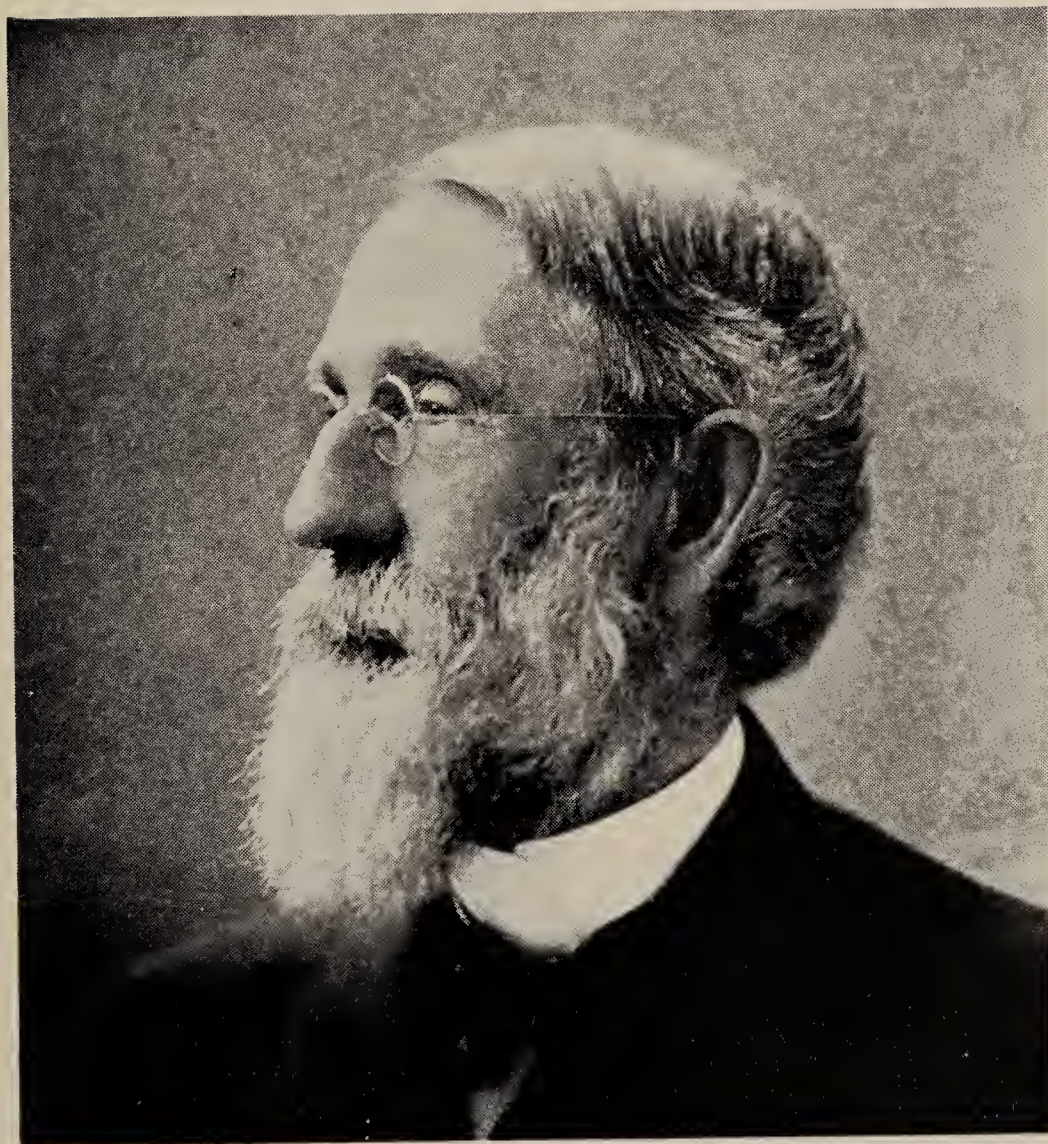
“All this is new; much of it is crude. There have been stumblings and blunderings and failures, and there will be more; but the idea lives. Evidently, it is not to be scolded out of existence by solid review articles, or pooh-poohed out of existence by pleasant magazine articles. Evidently, the idea is rooted in our planet, and will hardly be pulled up by narrow literary men, who hold the time-honored studies the most ‘eminently respectable;’ or by narrow practical men, who disbelieve in ‘book learning;’ or by narrow religious men, who fear that geology may harm Genesis.”

Professor Isaac Phillips Roberts was the first dean of the College of Agriculture. He was appointed in 1878, and a year later





EZRA CORNELL



ISAAC PHILLIPS ROBERTS







was elected director of the Cornell Experiment Station. It is not too much to say that he is now Cornell's patron saint of agriculture. Professor Roberts was born on a farm at East Varick, New York, July 24, 1833, and grew up on the shores of Lake Cayuga, not far from Ithaca, a farm boy without a day of college training. In 1862 he went west and began farming in Iowa. So successful a leader he became of the farmers in the state of his adoption, that in 1869 he was elected Professor of Agriculture in the Iowa Agricultural College. Thence, in 1874, he came to Cornell as Assistant Professor of Agriculture. He served New York farmers 25 years in laying the foundations of agricultural education. Professor Roberts lived to the ripe old age of 94, dying in San Francisco March 17, 1928. He gave a true conception of his services to agriculture in one of his last addresses in which he said: "To those who are strangers to me, it is proper to say that for more than half a century in the Middle West and in New York State, I stood on the advance line for a saner, more scientific, and more profitable use of our stupendous landed inheritance."

As a benefactor of Cornell University, of which the New York State College of Agriculture is a part, Ezra Cornell also deserves tribute. He was born at Westchester Landing, New York, January 11, 1807, and died in Ithaca, December 9, 1874. His parents were unable to give the son other educational advantages than the common school. From youth, however, he was a devoted student, and became distinguished for his practical scientific attainments. He settled in Ithaca in 1828, and showed foresight and skill in developing the water power of Fall Creek. Later, he became associated with Morse and superintended the erection of the first telegraph line in America, which was opened between Washington and Baltimore in 1844. Devoting himself to the building of telegraph lines, he amassed a large fortune. Throughout his life he was interested in agricultural development; was president of the New York Agricultural Society in 1862; and represented the Society at the International Exposition in London during that year. He was a member of the New York State Assembly, as assemblyman and senator from 1862 to 1868. He

## A HISTORY OF AGRICULTURE

not only richly endowed Cornell University, but as the profits from the sale of public lands for the benefit of land-grant colleges accrued, he was instrumental in securing the great sum of \$3,000,000 for the University.

In 1894, ten years before the College of Agriculture at Cornell was taken over by the State, the New York State Veterinary College came into existence. In the act establishing the College, its objects are clearly stated and must suffice to indicate and describe its work:

“The object of said veterinary college shall be: To conduct investigations as to the nature, prevention and cure of all diseases of animals, including such as are communicable to man and such as cause epizootics among live stock; to investigate the economical questions which will contribute to the more profitable breeding, rearing and utilization of animals; to produce reliable standard preparations of toxins, antitoxins and other products to be used in the diagnosis, prevention and cure of diseases and in the conducting of sanitary work by approved modern methods; and to give instruction in the normal structure and function of the animal body, in the pathology, prevention and treatment of animal diseases, and in all matters pertaining to sanitary science as applied to livestock and correlatively to the human family.”

The Veterinary College has had four deans, namely:

Dr. James Law, 1896–1908.

Dr. Veranus A. Moore, 1908–1929.

Dr. Pierre A. Fish, 1929–1931.

Dr. W. A. Hagan, 1931–

The Cornell University Agricultural Experiment Station was organized at Ithaca in 1879 as a part of the College of Agriculture. It was made the beneficiary of the federal research funds as these became available, beginning with 1887, and since the adoption of the College by the State, the Cornell Station has also received State support. It is to the very great credit of the two experiment stations in New York that in their long history there has always been close and harmonious cooperation. In 1923, the Station at Geneva was placed under the administration of Cornell



## THE STATE AIDS AGRICULTURE

University as a sister institution to the College of Agriculture, the State Veterinary College, and later the College of Home Economics established by the State in 1927.

What is now the very important Department of Agriculture and Markets, with headquarters in Albany, had humble beginnings in 1884, when a Dairy Commission was organized for the State. It continued to function until 1893, when the name was changed to Department of Agriculture, which, in turn, passing the 1900 limit of this history, was supplanted in 1917 by the Department of Farms and Markets, under the control of a Council of Farms and Markets which elected a Commissioner as an administrative head. In the first quarter century of the life of the Department, there were but three Commissioners; then came an era of frequent changes owing to political manipulations which were most detrimental to the work. All saw that a change in administration had to be made. The Legislature of 1921 took cognizance of a situation which was intolerable to the friends of agriculture. It was clear to all that there must be a centralization of responsibility. The position of Commissioner of Farms and Markets was created.

A few further words may be added to say that in 1926 the Department of Farms and Markets was given the more significant name of Agriculture and Markets, which is now its designation. Commissioners in charge of these several departments have been:

Fred C. Shraub, Lowville, 1893–1897.

Charles A. Wieting, Cobleskill, 1897–1908.

R. A. Pearson, Ithaca, 1908–1912.

Calvin J. Huson, Penn Yan, 1912–1916.

Charles S. Wilson, Hall, 1916–1921.

Berne A. Pyrke, Port Henry, 1921–1932.

Charles H. Baldwin, Cortland, 1932–

Another avenue of approach by the State in offering agricultural information to its rural population was the farmers' institute. There had been itinerant lecturers on farming, practical and theoretical, from early times, but in 1886 a bureau was

organized, which eventually was made a part of the Department of Agriculture, to give courses of lectures to such groups of farmers as might apply for them. A series of lectures lasting from one to three or four days constituted a "farmers' institute."

Inception of the farmers' institute, in this State at least, was due to the active minds of Professor I. P. Roberts and J. S. Woodward. At a meeting of the Western New York Horticultural Society in Rochester, January, 1885, these men broached the idea, then for several months turned it over in their minds and amplified their first conception of what the work should be. In the summer of 1885, there was a meeting of the teachers of agriculture in the colleges of the United States at Cornell University. Professor Roberts and Mr. Woodward, then an editorial writer on the *Rural New-Yorker*, attended. Before the adjournment of the meeting a conference was held by Professor Roberts, Mr. Woodward, and President Adams of the University, and it was decided to hold a farmers' institute at Cornell University sometime during the following winter.

It is probable that Professor Roberts with his vast knowledge of the agriculture of the country was the leading spirit in organizing farmers' institutes, but it is just as probable that the activity of Mr. Woodward had most to do in bringing about the fruition of the plans discussed. During the months that followed, the *Rural New-Yorker*, represented by Mr. Woodward, kept the matter before the people of the State and so made certain of sufficient interest to make the first institute a success. In January, 1886, a call was sent out for a farmers' institute at Cornell University on February 16, 17, and 18. The meeting was a huge success. Farmers came from every part of the State. Every seat in the hall furnished was taken and before the close of the first session a larger hall had to be sought. Hon. Harris Lewis, of Herkimer, was made president. During three days sessions were attended to the full capacity of the hall, many interesting addresses were made, all followed by sharp discussions, and at the close of the meeting everyone was convinced of the value of institutes and a movement was made for their increase and spread.



# THE STATE AIDS AGRICULTURE

## FARMERS' INSTITUTE

Held at Cornell University February 16, 17, 18, 1886

TUESDAY, FEBRUARY 16

### MORNING

Institute opened by informal meeting in faculty room.

Visitors were entertained by President Adams and Professor Roberts.

It was said that the purpose of the Farmers' Institute was to ask kindly criticism from the farmers and to connect them more closely with the University.

Hope was expressed that an annual meeting might be held, also six or seven institutes throughout the State.

12 M Institute members attended Professor Anthony's lecture in Physics.

### AFTERNOON

2:00 Fertilizers (Paper read by Professor Comstock). Ara Campbell, Owego, N. Y. Methods of Cornell University in Entomology. Professor Comstock, Cornell University.

4:30 Institute visited Entomological Laboratory and later the Gymnasium.

### EVENING

#### *Library Hall*

Plea for Scientific Agriculture. President Adams.

WEDNESDAY, FEBRUARY 17

### MORNING

#### *Room K, Morrill Hall*

Honorable Harris Lewis, Herkimer, N. Y., former President of State Agricultural Society, presiding.

Corn Feed. Professor Caldwell, Cornell University.

Brains and Manners on the Farm. J. S. Woodward of *Rural New-Yorker*.

A talk on Cornell University methods of teaching agriculture. Explanations of free scholarships, and how to obtain their benefits. Professor Roberts.

Visit to University barns.

12 M. Lunch served in Assembly Room, Morrill Hall.

### AFTERNOON

#### *Botanical Lecture Room, Sage*

2:30 James McCann, Elmira, presiding.

Our Stock. Professor Roberts.

Our Present Knowledge of the Silo and its Products. Major H. E. Alvord, Director of Houghton Farm, Orange County, N. Y.

The Jersey, the Model Farm and Dairy Cow. J. C. Sibley of Sibley & Miller.

Importance of Fungoid Diseases of Plants. J. C. Arthur of Geneva Experiment Station.

4:30 Visit to Botanical Department and Conservatory.

# A HISTORY OF AGRICULTURE

## EVENING

### *Library Hall*

Susceptibility of the Horse and Other Animals to Climate, Soil, Development and Breeding. W. B. Powell of Powell Bros.

## THURSDAY, FEBRUARY 18

### MORNING

### *Room K, Morrill Hall*

Professor Roberts elected chairman and Major H. E. Alvord, permanent secretary.

Shropshire Sheep. J. L. Stone, Waverly, Pa.

Shropshire Sheep as Producers of Early Lambs. J. S. Woodward.

Prevention of Diseases Which Exist Among Domestic Animals. Professor James Law of Cornell University.

Bee Culture. W. A. Bean, McGrawville.

### AFTERNOON

The Holstein Cow and What She is Good For. Mr. Smith of Smith, Powell & Lamb, Syracuse, N. Y.

Feeding. Colonel F. D. Curtis, Saratoga, N. Y.

The Dairy. L. P. Smith, Trumansburg, N. Y.

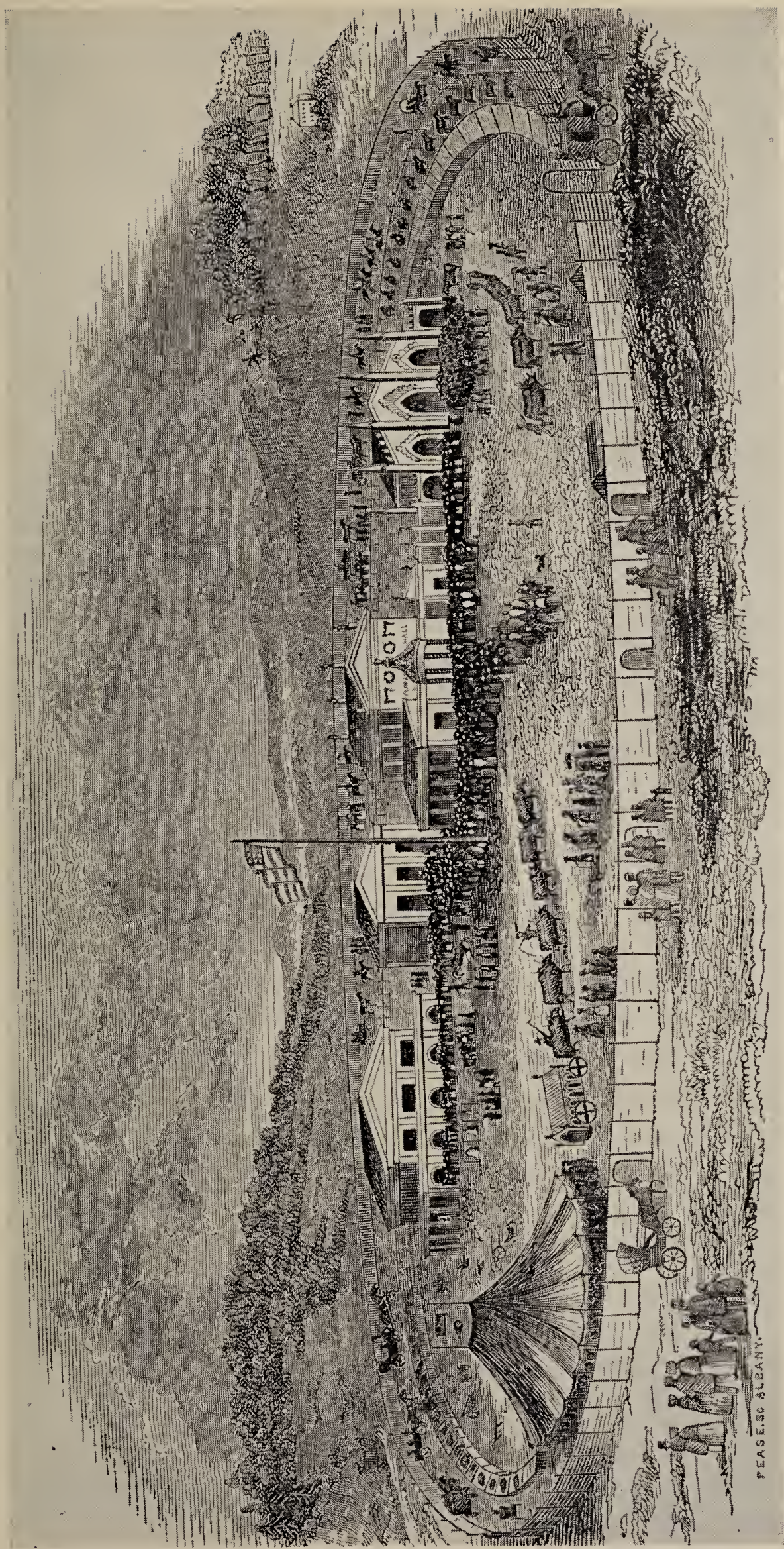
Remarks by Honorable Harris Lewis and other members of the Institute.

Vote of thanks, moved by Colonel Curtis to Professor Roberts and his associates for the zeal and perfection of the Farmers' Institute at Cornell University.

The State Agricultural Society was asked to hold institutes during the next winter. The request did not meet with the unanimous support of the directors, but finally favor was won, and at a meeting of the executive board of the Society in Utica, September, 1886, a resolution was passed setting aside \$1,050.00 to provide for three institutes in the State during the coming winter. The first of these was held in Lockport at the invitation of the Niagara County Agricultural Society. Lockport was the home of Mr. Woodward, and due to his hard work, the second farmers' institute held in the State was as phenomenal a success as the first. It was held January 13 and 14, 1887, its lecturers including several of the most prominent agriculturists in New York and notables from other States. Another meeting was held at Ithaca and a third at Batavia during that winter. Farmers' institutes in New York were now launched.

Of the scores of men and women who taught in institutes and made them a power in solving farm problems and a mighty influ-





VIEW OF THE STATE FAIR GROUND AT AUBURN, 1846







ence in the social uplift of rural New York, perhaps the following should be singled out for long service and exceptionally good work: C. E. Chapman, Freeville; Frank A. Converse, Woodville; J. F. Converse, Woodville; H. E. Cook, Canton; John G. Curtis, Rochester; F. E. Dawley, Fayetteville; A. R. Eastman, Waterville; George T. Powell, Ghent; Dr. C. E. Smead, Logan; George A. Smith, Frankfort; Edward Van Alstyne, Kinderhook; Henry Van Dreser, Cobleskill; Jared Van Wagenen, Jr., Lawyerville; Frank D. Ward, Batavia; S. D. Willard, Geneva; D. P. Witter, Berkshire; J. S. Woodward, Lockport. Among the women prominent and long in the service may be named: Mrs. S. M. Judd, Canton; Mrs. B. B. Lord, Sinclairville; Mrs. Helen Wells, New York City. Members of the faculty of the New York State College of Agriculture, of the staff of the State Experiment Station at Geneva, and of the Agricultural Department and Department of Education in Albany were called upon for aid and helped greatly to make farmers' institutes successful.

Another device of the State to distribute information to farmers and to promote and encourage agriculture is the system of state and county fairs. Soon after its organization, the New York State Agricultural Society attempted to hold a State Fair. There was insufficient interest among its members and the public to warrant holding such a fair until 1841. On May 5 of that year, the Legislature appropriated \$8,000 for five years for a State Fair and for county fairs. The Agricultural Society was to receive annually \$700.00 of this sum for a State Fair, and September 29 and 30 of the same year the first fair was held in Syracuse.

The departments were few, the premiums small, and two days was a short time for a fair; nevertheless, the event was considered a great success both as to attendance and interest. The stock pens were in a grove, and implements and produce were exhibited in the court house. The Fair was attended by from 10,000 to 15,000 people from all parts of the State. An interesting feature of this and for many years in succeeding fairs was a plowing contest.

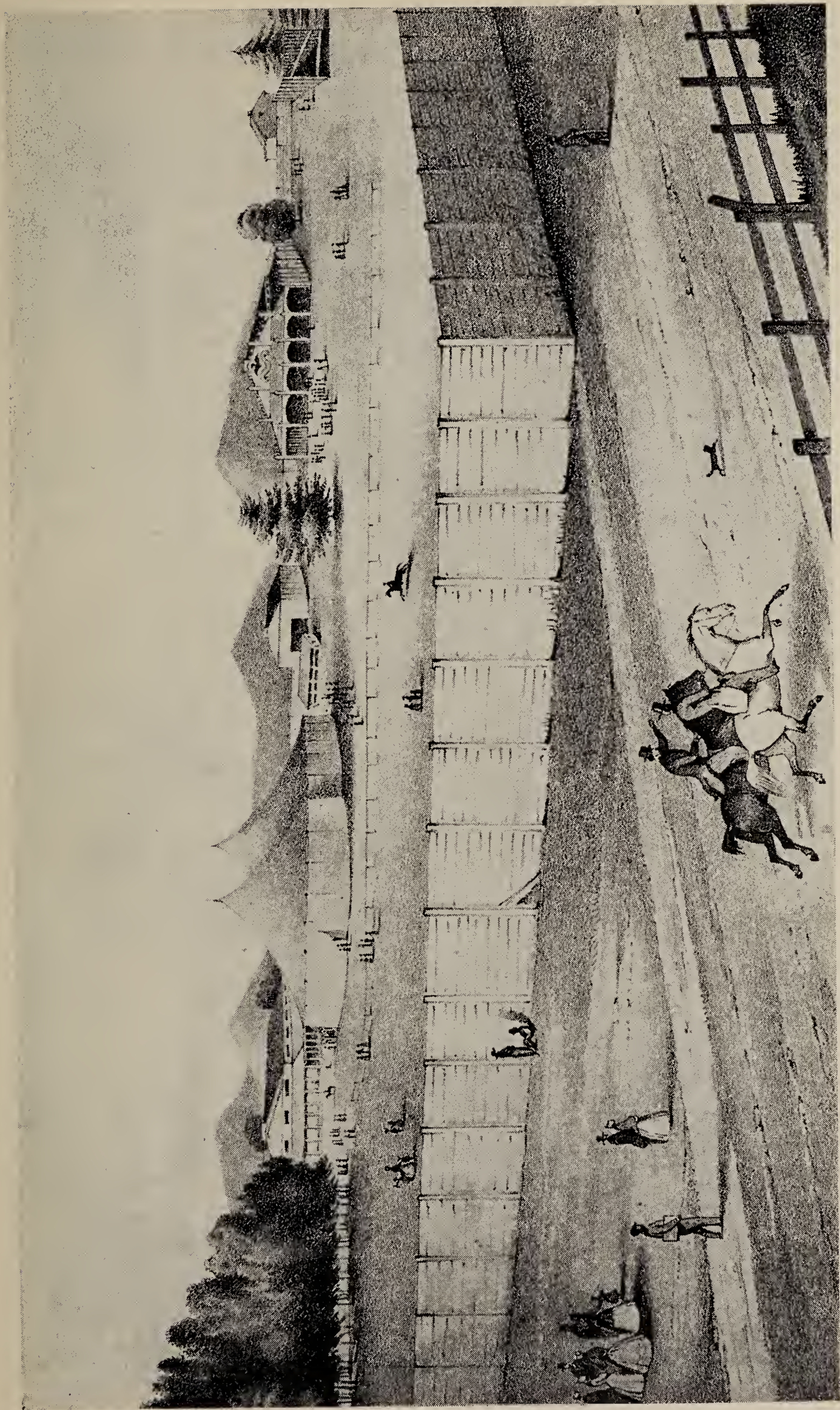
A second fair was held in late September in 1842 at Albany, with premiums amounting to \$2,000, a large sum for such a purpose at that time. Governor William H. Seward gave an oration

in place of Daniel Webster, who was unable to be present as expected. Much was made of the display of 40 plows and over 600 head of livestock. In 1843, the State Fair was held at Rochester in an enclosed field of 10 acres. The admission fee was 12½ cents. Ex-President Van Buren, Governor Bouck, Ex-Governor Seward, and Daniel Webster were some of the distinguished guests. Visitors came by canal boats and train in thousands, and the Rochester fair was considered a prodigious success.

Poughkeepsie furnished a site in 1844. George Bancroft, the celebrated historian, was the speaker. In 1845, the fair was held in Utica. The feature this year was not agricultural but mechanical, the magnetic telegraph. Josiah Quincy of Massachusetts was the orator. In 1846, Albany was host with Samuel Stevens as speaker. In 1847, the site was Saratoga on an enclosed area of 16 acres. United States Senator John A. Dix was chosen as orator and Ex-Presidents Van Buren and Tyler and Governor Young were guests. The greatest fair in the New World until that time, so it was heralded, was held in Buffalo in 1848. Generals from the Mexican war, the Governor and several Ex-Governors, and Lord Elgin of Canada were the guests of distinction. More than 1,500 head of livestock were shown and there were 5,000 exhibits of implements.

The fair went again to Syracuse in 1849. Among the notables present were Vice-President Fillmore, Henry Clay and Governor Fish. Professor J. F. Johnson came all the way from England to deliver an address on scientific farming. The next year at Albany, the presence of Lafayette's grandson helped to make the fair a success. At Rochester, in 1851, there was a record-breaking attendance of 100,000 people. The orator was Stephen A. Douglas. Governor Hunt of New York, Ex-President Tyler, and Governor Wright of Indiana also made brief addresses. By 1852, the authorities were able to offer \$7,500 in premiums at the annual meeting in Utica, with Horatio Seymour as chief guest and orator. The next fair in Saratoga was a failure because of bad weather, and the succeeding one, 1854, held in New York City, was poorly attended and a money loser. In 1855, the exhibition at Elmira was so great a success that it quite made up for the failures of the two preceding years. The immense crowd in





VIEW OF THE STATE FAIR GROUND AT SARATOGA, 1847







## THE STATE AIDS AGRICULTURE

attendance was addressed by Governor Joseph A. Wright of Indiana.

The fair was held in Watertown in 1856, at which Horace Greeley gave premiums for the best farming efforts of youths under 18. In 1857, in Buffalo, the great attraction was a steam engine to furnish power for threshers, plowing, and other farm operations. The largest crowd ever convened in the State attended with Ex-President Fillmore, Governor John A. King, and Ex-Governor Washington Hunt among the guests. The great orator, Edward Everett, was speaker for the occasion. Again the fair returned to Syracuse in 1858, with Martin Van Buren as guest and speaker. The next year, Albany entertained with John A. Dix as orator. From 1860 to 1865, the Civil War was on, but the State Fair was held nevertheless—in 1860 at Elmira; 1861, Watertown; 1862, Rochester; 1863, Utica; 1864, Rochester; 1865, Utica. Public men were exceedingly busy; none are mentioned as guests except Ezra Cornell in 1862 at Rochester, at which time he made his offer of an endowment fund to establish Cornell University.

In 1866, the State appropriated \$5,000 to make trials of farm implements at the fair held that year in Saratoga, with Governor Fenton as the speaker of the day. The next was at Buffalo and seems to have had no remarkable features. In 1868 the fair went to Rochester with an innovation of evening agricultural discussions. At Elmira the next year a record was broken with an attendance on one day of 25,000. In the years that follow the fair was held, without any outstanding features that appear in the reports, at Utica, 1870; Albany, 1871; Elmira, 1872; Albany, 1873; Rochester, 1874; Elmira, 1875; Albany, 1876; Rochester, 1877; Elmira, 1878; Utica, 1879; Albany, 1880; Elmira, 1881; Utica, 1882; Rochester, 1883; Elmira, 1884; Albany, 1885; Utica, 1886; Rochester, 1887; Elmira, 1888; Albany, 1889. By this time the premiums offered were ten times those of the 1860's, and the fair lasted seven days.

It began to be apparent that the State Fair would be better off if it could be held every year in the same place, and in 1889 the Executive Committee accepted the offer of Syracuse citizens giving the Society perpetual use of 100 acres of land. Here, in 1890,

## A HISTORY OF AGRICULTURE

the State Fair found a permanent home. From time to time additions have been made to the area which now is the commodious site of the annual exhibition held in August or September where New York's farmers compete in 10,000 or more entries for splendid premiums, and each day is devoted to some particular interest. The New York State Agricultural Society was sponsor for the fairs from their beginning in 1841 until 1899, when the State took charge.

These accounts of the several agricultural educational enterprises in which the State has been engaged, although quite too brief to be adequate, suggest the debt which modern farming owes to the public. Because of these efforts of the State, it is certain that the average farmer today knows more of the science on which his industry rests than scientists knew 50 years ago, and he is making use of the knowledge in his farm operations. The accounts show, also, that it is the mature judgment of the legislators of the State that agricultural prosperity is dependent on sound knowledge of problems and principles worked out by its experiment stations and taught by its educational institutions, and not on artificial aids to fix prices, control production, or limit importations.



## CHAPTER XX

### READJUSTMENTS

THE period under review came to an end at a time of radical reconstruction in rural America. Readjustments there have been and must ever be if the farmer is to keep up with the world. The farmer of one, two, or three centuries ago would have a place today only in a museum of vanished species. Without attributing causes, suggesting remedies, or prophesying for the future, let us attempt to see what the readjustments in occupations and population have done to New York's husbandry at this the beginning of what appears to be a new era in agriculture.

Looking at agriculture and the industrial arts of the world, it is apparent that the two cannot occupy the same arena at the same time and live and let live. The simple, pastoral, individualistic business of farming, its products sold in an open market, is too little in accord with the complex, corporate, capitalistic manufacturing industries, selling their products in a controlled market. There is a continuous exchange of workers in the two fields. The movement is strongest from agriculture to the arts—from the country to the city. The front line of the one is in continuous contact with the rear line of the other. So great is this movement in the United States in recent years that it would seem that Ceres has been dethroned and Plutus crowned. Big Business has become the idol of the Nation. Such a readjustment from rural to urban industries has been going on in New York for a century. The magnitude of the current from rural to urban population in the State is shown in the following figures:

#### Percentages of New York's Rural and Urban Population

<i>Year</i>	<i>Rural</i>	<i>Urban</i>
1880	44	56
1890	35	65
1900	27	73
1910	21	79
1920	17	83
1930	16	84

## A HISTORY OF AGRICULTURE

These figures tell a story of stirring significance. When chemists were telling us that soon the land could not support the world's teeming millions, such figures would have seemed alarming—but they are not so bad in these days of overproduction of human foods.

Long ago New Yorkers in the furrow became antagonistic to New Yorkers in the factory, fighting for the control of the country. In politics, up-State is arrayed against down-State, despite clamorous calls for party regularity. The Republican elephant and the Democratic donkey would not eat out of the same trough. The country was dry; the city wet. Country churches were fundamentalists; city churches, liberal. But farming is still out and out individualistic; manufacturing and capitalistic enterprises are becoming more and more corporate. The nationalities in rural and urban New York differ; Teutonics in the country, Latins in the city; Gentiles in the country, Hebrews in the city. Roman Catholics live largely in towns and cities; Protestants in the country. The sullen compromise that now exists between country and city in all America began in New York at least a century ago, brought about by differences in economic demands, and the restless traits to trek and change.

The population of New York throughout the 300 years of its agricultural history has been nomadic, as in the whole country. There has been a continuous procession of farmers coming and going. Land is not a permanent possession. It seldom remains in one family several generations as most farms do in Europe. The illusory expectation of finding better land somewhere else, carried through several generations, has become, as it were, an inherited characteristic and with it comes uncertainty of mind as to occupation. By the end of the nineteenth century new lands available for agriculture became insignificant. The nomadic instincts persisted. The city and the factory began to call and a current of restless humans set cityward instead of westward, as had been the way in the past. Little has been said in current discussions of the American yearning for "a change," but it exists and is a factor in the flow of humans from rural to urban life. This is one cause of abandoned farms.



## READJUSTMENTS

The industrial arts began during the last half of the past century to multiply the comforts of city life and sanitary science to make life in the town as healthful or more so than in the country. In many ways, the town and city became pleasanter places in which to live, so that young men began to look forward to city life and old men to desire to end their days in urban comfort. It was everywhere apparent that the prosperity and the luxury of the city, made so by men who manufacture and who traffic in the products of the soil, were making the farmer's son eager to abandon his birthplace. In a decline in agricultural prosperity men lose their love for land which does not support them comfortably, and the ownership of which entails unequal burdens in taxation and restrictions. There is little chance to provide comfortable living and develop rural culture in a farming community that is poverty stricken.

Abandoned farms appeared in New York early in the nineteenth century. Steamboats, the Erie Canal, and railroads brought about economic friction between farming communities and encouraged manufacturing arts. With a predisposition to try to better himself, it was easy for a farmer to make up his mind to try the city and a change of occupation. Of course, as everyone knows, most of these abandoned farms should never have been put under cultivation. The losses in population are not all from deserted lands; some communities have suffered dissolution because larger farms can be managed with the better farm machinery of the times and good farmers buy small parcels of land owned by their neighbors. There are still other causes for the declining rural population. Rural handicrafts have been crowded to the wall by competing city factories. Cross-road hamlets no longer have reason for existence. One man with machinery can farm more land year in and year out than twenty could a generation ago. Rural populations have suffered great losses from a declining birth rate. Large families are no longer desired; a widow with several children is no longer sought for by fortune hunters as Benjamin Franklin said she was in the 1760's.

An abandoned farm is not the alarming calamity that it is usually pictured. It is bad when land is in full use. When all of the acres are under the furrow, as is the case in European

## A HISTORY OF AGRICULTURE

countries, there is no chance for expansion. People feel cramped and shut in. Happily, this is not the case in New York State. Its reserves of land and natural resources are great. Perhaps half, or more, of New York's area is in swamps, forests, and hillsides, much of which is usable and will be used in due course. The abandoned farms brought about by economic readjustments constitute a reserve of considerable potential value. A good many western states must look forward to the time when every acre of land available for irrigation is taken up. Irrigation is the limiting factor, and when water fails expansion is at an end. New York, however, for a century or perhaps centuries, can fall back on its swamps, forests, hillsides, and abandoned farms.

It is apparent that individualism is drifting toward groupism, and that workers in all fields must incorporate or cooperate. There have been sporadic attempts for a half century throughout the State at cooperation in agriculture. In Wayne county, particularly, but in several other counties as well in western New York, evaporators to dry apples and raspberries were constructed in which the product of several farms could be cared for. There was an attempt in the 1890's to make sugar from the beet in a cooperative factory. Several canning factories were owned many years ago in common by a number of truck growers as was true of plants for making vinegar and putting up pickles. Truck farmers in various portions of the State banded together in the same period to market their crops and to secure better transportation. It cannot be said that these early efforts at cooperation were very successful, but cooperation was in the air long before it was put in operation as it now is. The transition from individualism to group action in agriculture has indeed been slow. Gigantic mergers such as those in the industrial arts and finance are impossible.

Perhaps the most momentous change in the agricultural readjustment of times has come about through the rapid development of mechanical transportation. Automobiles, trucks, fast trains, refrigerator cars, and a thousand accessories have shattered the sheltered position formerly held by many rural industries by rea-





HYDE PARK — THE HOME OF DAVID HOSACK, A COUNTRY GENTLEMAN OF A HUNDRED YEARS AGO







son of nearness to markets. All perishable agricultural products, chiefly milk, fruits, poultry wares, vegetables, and flowers, are brought to markets from points a hundred times more distant than could have been done only a few years ago. Within 25 years, or perhaps 15, the length of the haul has increased from 25 miles to the width of the continent for perishables. Canning, preserving, refrigeration, and freezing keep surpluses safe, sound, and sanitary. But this is not all. Very disastrous, also, has been the mechanization of transportation to the markets of growers of hay, the grains, and the breeders of animals for farm and road work. The world has seen no other industrial revolution so rapid and so far reaching, except, perhaps, the change from hand work in the trades to machine work brought about by steam early in the nineteenth century.

The American farmer, ever of an inventive turn of mind, loves machinery. Some make an idol of it. It is not at all unusual to find in the State farms on which the machinery is worth as much as either the buildings or the land and sometimes both. The machine age has come on a little more rapidly than the farmer's business capacity has developed. Not a few farmers have gone to the wall because they were not up to managing a business which has been complicated by an increase in capitalization to buy farm machinery. Few indeed are the men on the land who keep books sufficiently well to be able to say whether the costs of farming by machinery do not lower the profits over what they would have been had the work been done with less machinery and more hand labor. Modern farmers with all of their machinery are hard put to it to make a living as good as that enjoyed by their fathers on the same land.

The standard of living on farms compared with that in towns began to decline soon after the Civil War. Within the lifetime of men of middle age, comforts of farm life were comparable with those in the city. The twentieth century farmer began to feel that though he had many things of which his forefathers had never dreamed, yet they had some things that he now lacks. Chiefly his loss is that which human service provides. Not so long ago every

farmer of moderate means was able to keep one hired girl the year around and in summer two. He also kept from two to six hired men in the summer and half as many in the winter. Few indeed now are the farmers, no matter how well to do, who can afford or obtain a maid for service, and the hired man as a long-time servant is almost a thing of the past. Industrial arts and the towns and cities they have created began long ago to deprive the farmer of the comforts of human service.

By 1900, telephones, electricity, automobiles, and hard roads had begun to draw country districts into industrialized American life. The radio and the motion picture came a little later to add their attractions to the industrial fabric. These new inventions, with the enormous influx of farm machinery, greatly lighten the discomforts of farm life and decrease the physical labor. It is well, of course, that the farmer has shared in the transformation of modes of living, but there are disadvantages. The drawbacks become almost at once apparent. The economic hazards of farming are increased. A man must have more money to begin and keep going. His cost of doing business is sometimes greater than the income. Taxes are a heavier burden. At every turn of country roads insolvent farmers can be found—some have been insolvent all of their lives—although few bankrupt farmers get in the courts.

Industrial arts and business profit through quick turnovers, continual betterments in equipment and ways of work. The modern farmer tries to emulate these methods and often loses thereby. Change and hurry are characteristic of the farming of today as compared with that of yesterday. Patience and thoroughness have ever been and must ever be cardinal virtues of husbandry—observed to a greater degree a hundred years ago than nowadays. In the arts and in business men deal with inanimate things in such quantities as they may choose and at times to suit their needs. But plants and animals are animate and the laws of nature do not permit them to be hurried. Plants must go through their cycle of months and years. Animals lie in their mothers' wombs as long now as they did when Noah turned their forebears out of the Ark. There are no short cuts in the processes of nature



and fallow in times and seasons is a rule that cannot be overcome. That nature cannot be hurried is too often lost sight of in the attempts now going on to readjust agriculture. "Nature," as David Hume said, "will have her rights."

The new type of agriculture now in full swing requires less strenuous physical labor and a much shorter working day. On the other hand, the responsibilities and worries are greater. Almost certainly, well-to-do tillers of the soil must work as hard now as in the old days. Time was, say in the middle of the nineteenth century, when a landowner could sit on his porch or ride on his horse and watch hired men do the work. With the coming of the machine age and the industrialization of all civilized peoples, the farmer has been forced to let the hired man go to where he can earn higher wages and partake of the excitements of towns, and must operate this or that machine with his own hands. It is very doubtful whether farm machinery has given the farmer more leisure than his father or grandfather had.

In recurrent periods through 300 years of agriculture in New York, farmers have been unhappy. We hear rather commonly that agrarian discontent is a feature of late years. This is not true. Good times and bad times have alternated in agriculture throughout the whole period of the State's history. Many of us remember well the agricultural depression from 1873-79 and again from 1893-97. Some say that agrarian unrest is always present, and perhaps to some it is. But there have been more happy periods for New York farmers than there have been unhappy ones. Farming prosperity in the State can hardly be said to have been transient; it is more accurate to say the storms and flurries are transient. After distressing depressions, it has never been as difficult to renew and revitalize agriculture in New York as in states more distant from markets and in which diversification of crops is less well developed. The New York farmer is less often the pawn of middlemen and the plaything of market speculators than farmers in other states by reason of diversified crops.

Farm crops in New York have ever shown a diversity hardly equalled elsewhere. Almost every agricultural product of economic importance in temperate climates is produced in the State.

## A HISTORY OF AGRICULTURE

Soil, climate, markets, and the inclination of farm owners in New York favor diversification. In total value, dairy products lead all other farm crops, with hay, clover, and alfalfa, grouped under forage, ranking next, potatoes third. Going further in order of importance, orchard products, corn, oats, wheat, grapes, small fruits, navy beans, and buckwheat follow. There are not a few other crops and products of lesser importance but of high value in one part or another of the State. Poultry husbandry, the nursery business, truck farming, the florists' trade, each greatly exceed the value of some of the field crops named.

By 1900, the centralized school had begun to supersede the country school which was the pride of earlier generations. There can be no question, by and large, but that a centralized school gives farm children a broader and fuller education. The teachers are better paid and the schools in town are much better equipped than the average country school. But urbanizing the pattern of rural education is not all to the good. It has tended to shape the farm boy and girl in a cheap town mold. No doubt, too, it is a first step to entice the boy from the farm to the city, although the splendid courses in agriculture in country-town schools help to offset the urbanization of the farm boy and girl.

The philosophical and contemplative temperament which the country gentlemen in the early days of statehood possessed and which was so common throughout the State and Nation at that time as represented by our early presidents, governors, statesmen, clergy, and other men of affairs almost ceased to exist in the industrial boom of the late 1800's. The republic of cultured, intellectual, independent farmers, which Thomas Jefferson considered the foundation of democracy, had almost ceased to exist. It is all very well to be born in the country, but many young people grow up to believe that it is a place to get away from at the first opportunity. Their desires run to a life of friction, in the stir of multitudes, to experience the thrills of competition, to get into the struggle for success. Few of those who leave the farm for the city as young men and become inured to city life can be persuaded to return to the country, except as a refuge to fly to in the summer if means permit. There are signs now that the wheel



has started to turn, and that a good many country-bred people living in cities in occupations of tedious specialization and uniformity have a mind to return to rural diversity.

There is a flood of literature urging the industrialization of agriculture. Much of it is stuff and nonsense. From it one would glean that the object of life is to attain efficiency. Some of the happiest, most worthy, and most influential farmers in the State are dreadfully inefficient. A self-respecting freeman is a more desirable citizen than a slave to industry. A farmer who can "loaf and possess his soul" is to be envied. One likes the farmer as he is—not too efficient. "Why does a farmer stick to the farm?" Farming is a pleasant way of life as well as a means of making a living. A farm is a place of peace, a place of refuge, a home, in which a calm, sane, serene life may be lived. Efficiency should be one of the articles of a farmer's creed, but it ought never to become the whole creed. Industry, patience, vision, thoroughness, decision, are just as important in an agricultural creed as bookkeeping efficiency.

The demand for meats and cereals, mainstays of agriculture, has fallen off in consequence of changes in human menus. Labor is less strenuous and working hours are shorter, conditions which cause appetites to droop. Fruits and vegetables are being substituted for the hardier fare of old. Diet fads are cutting down the human consumption of food. Carnivorous man tends more and more to vegetarianism. Synthetic foods are in the offing. Rayon, elastic textiles, and rubber have lessened the demands for silk, cotton, linen, and leather. Clothing is lighter in texture and fewer garments are worn than formerly. The magicians that brought rayon and lastex into being are said to have other products just as remarkable up their sleeves. It seems that the transitional period in agriculture may have just begun.

Agriculture must ever have need of adjustments. Cain, the keeper of sheep, and Abel, the tiller of soil, had interests which did not dovetail. The patriarch Jacob outwitted his father-in-law in the "peeled rod" episode, and started trouble in the breeding of animals. When the plodding labors of the husbandman began

to take the place of pastoral agriculture there must have been many apprehensive souls. The allusions in the Old and New Testaments to the agricultural practices of Palestine hint at derangements. Rome and Carthage competed in the arts of agriculture. The Romans established a sound system of agriculture in Britain which nearly disappeared during the Anglo-Saxon conquest. Under the Normans, British husbandry was concerned almost wholly with droves, herds, and flocks, and the adjustment to fenced in field crops must have caused a convulsive revolution. Jethro Tull's *Horse Hoeing Husbandry*, published in 1731, changed the agriculture of Europe and North America. The drover's occupation has disappeared in Europe and North America. The Agrarian laws of the Romans and the Corn laws of Britain wrought havoc with the agriculture of their times. Probably many more major and a thousand minor rural upsets might be recorded to show the necessity and the continuous nature of agricultural readjustments.

The present flow of rural workers to towns is not novel. Every country has had countermarches between country and town. Perhaps the first big migration from rural to urban pursuits of which history gives full account was in the great economic crises in the last days of the Roman Republic. Marcus Terentius Varro, a grand old Roman statesman, author, and farmer, who wrote 600 books and snatched time to manage several farms, wrote a book in his eightieth year (36 B. C.) on agriculture, *Rerum Rusticarum*, in which he gives a description of an agricultural readjustment almost the counterpart of that which is now going on in our country. Here is a paragraph,

"Since now forsooth most of our gentry crowd into town, abandoning the sickle and the plough and prefer to exercise their hands in the theatre and the circus rather than in the corn field and the vineyard, it has resulted that we must fain buy the very corn that fills our bellies and have it hauled in for us, yea, out of Africa and Sardinia, while we bring home the vintage in ships from the islands of Cos and Chios! And so it has happened that those lands which the shepherds who founded the city taught



## READJUSTMENTS

their children to cultivate are now, by their later descendants, converted again from corn fields back to pastures."

Is America headed towards the end to which the Roman Republic came? Who can say? In this year of 1933, disturbed with threats of agricultural revolutions, acute anxieties in all industries, exciting political events in every part of the world, talk of the decadence of civilized countries, it might seem that our Republic is following the course of the Roman Republic. Away with such a thought! More likely, there will come the marvels of tomorrow predicted by optimistic prophets of today.





## BOOKS HELPFUL TO THE AUTHOR

- Account of the Genessee Tract*, 1791. (In Imlay, *Western Territory of North America*, 458–481.)
- Adams, John. *Diary*. Boston. 1850.
- Appleton, D. *Cyclopaedia of American Biography*. New York. 1888.
- Bacon, William. *History of the Agricultural Associations in New York, 1791–1862*. (In *New York State Agricultural Society Transactions*, XXIII, 143–168. 1863.)
- Bailey, L. H. *Cyclopedia of American Agriculture*. New York. 1907–09.  
 — *The Standard Cyclopedia of Horticulture*. New York. 1914–17.
- Bancroft, H. H. *Native Races*. 1875.
- Barber, J. W., and Howe, H. *Historical Collections of the State of New York*. New York. 1842.
- Barbour, James. *Agricultural Associations and Agricultural Schools*. (In *New York Board of Agriculture Memoirs*, III. 1826.)
- Barclay, Capt. *Agricultural Tour in the United States and Upper Canada*. London. 1842.
- Barry, Patrick. *The Fruit Garden*. New York. 1851.
- Bartram, John. *Observations in Travels from Pensilvania to Lake Onondago, etc.* London. 1743.
- Belknap, Jeremy. *The History of New Hampshire*. Boston. 1792.
- Bidwell, P. W., and Falconer, J. I. *History of Agriculture in the Northern United States, 1620–1860*. Washington. 1925.
- Bigelow, Timothy. *Tour to Niagara Falls in 1805*. Boston. 1876.
- Bordley, John Beale. *Essays and Notes on Husbandry and Rural Affairs*. Philadelphia. 1801.
- Bostock, John, and Riley, H. T. *The Natural History of Pliny*. London. 1855.
- Bradley, Daniel. *Soil and Agriculture of Onondaiga County*. (In *New York Board Agriculture Memoirs*, III, 1826.)
- Burr, Aaron. *Letters to His Wife*. New York. 1788.
- Burnaby, Andrew. *Travels through the Middle Settlements of North America*. Dublin. 1759–1760.
- Campbell, Patrick. *Travels in North America, 1791–1792*. Edinburgh. 1793.
- Campbell, William W. *The Life and Writings of DeWitt Clinton*. New York. 1849.

## A HISTORY OF AGRICULTURE

- Carrier, Lyman. *Beginnings of Agriculture in America*. New York. 1923.
- Carver, T. N. *Historical Sketch of American Agriculture*. (In Bailey, *Cyclopedia of American Agriculture*, IV. 1909.)
- Chastellux, Francois Jean. *Travels in North America in the Years 1780, 1781 and 1782*. New York. Reprint. 1827.
- Clinton, DeWitt. *An Introductory Discourse, Delivered Before the Literary and Philosophical Society of New York*. New York. 1815.
- *Private Journal*. New York. 1849.
- Cobbett, William. *A Year's Residence in the United States of America*. London. 1819.
- Colden, C. D. *Memoir, Prepared at the Request of a Committee of the Common Council of the City of New York, and Presented to the Mayor of the City, at the Celebration of the Completion of the New York Canals*. New York. 1825.
- Combe, George. *Tour of the United States*. Philadelphia. 1841.
- Cooper, J. F. *Chainbearer*. New York. 1845.
- Cooper, Thomas. *Some Information Respecting America*. London. 1794.
- Cooper, Judge William. *Guide in the Wilderness*. New York. 1810.
- The Country Gentlemen (weekly)*, Albany, N. Y., 1853—
- Coxe, William. *A view of the Cultivation of Fruit Trees, etc.* Philadelphia. 1817.
- Coxe, Tench. *View of the United States of America*. Philadelphia. 1794.
- Crevecoeur, J. Hector St. John De. *Letters from an American Farmer*, 1782. Reprint. New York. 1916.
- The Cultivator (monthly)* Albany, N. Y. 1834–1865.
- Darby, William. *A Tour from the City of New York to Detroit, in the Michigan Territory*. New York. 1819.
- Dankers, Jaspar, and Peter Sluyter. *Journal of a Voyage to New York, 1679–1680*. (In *Long Island Historical Society Memoirs*, I, 1–428.)
- Davidson, J. B., and L. W. Chase. *Farm Machinery and Farm Motors*. New York. 1909.
- Davis, John. *Travels in the United States of America*. London. 1803.
- Deane, Samuel. *Journal*. Portland. 1849.
- *The New England Farmer*. Worcester. 1790.
- Denton, Daniel. *A Brief Description of New York*. (1670.) Reprint, Cleveland. 1902.
- Description of the Settlement of the Genesee Country (1792)*. (In O'Callaghan's *Documentary History of New York*, II, 1129–1168. 1850.)



## BOOKS HELPFUL TO THE AUTHOR

- De Witt, Benjamin. *A Sketch of Turnpike Roads in the State of New York*. (In *Trans. Society Prom. of Useful Arts*. 1807.)
- Downing, A. J. *Fruits and Fruit Trees of America*. New York. 1847.
- Duncan, John M. *Travels Through Part of the United States and Canada*. Glasgow. 1823.
- Dwight, Timothy. *Travels in New England and New York*. New Haven. 1821.
- Eliot, Jared. *Essays on Field Husbandry in New England*. Boston. 1760.
- Englishwoman, An. *Views of Society and Manners in America*. London. 1821.
- Evans, P. D. *The Holland Land Company*. Buffalo. 1924.
- Fearon, H. B. *Sketches of America*. London. 1818.
- Ferrall, S. A. *A Ramble of Six Thousand Miles Through the United States of America*. London. 1832.
- Fernow, Berthold. *New Netherland, or the Dutch in North America*. (In Winsor, *History of America*, IV, 395–409.)
- Flint, Charles L. *A Hundred Years' Progress of American Agriculture*. (In 19th Annual Report, Maine Board of Agriculture. 1874.)
- Fowler, John. *Journal of a Tour in the State of New York*. London. 1831.
- French, J. H. *Gazetteer of the State of New York*. New York. 1860.
- The Genessee Farmer* (weekly) Rochester. 1831–39.
- Gilbert, Frank. *Jethro Wood*. Chicago. 1882.
- Goodwin, H. C. *Pioneer History; or, Cortland County and the Border Wars of New York*. New York. 1859.
- Hall, Francis. *Travels in Canada and the United States in 1816 and 1817*. Boston. 1818.
- Halsey, F. W. *The Old New York Frontier*. New York. 1901.
- Haworth, P. L. *George Washington—Farmer*. Indianapolis. 1915.
- Hedges, Henry P. *Development of Agriculture in Suffolk County*. (In *Bicentennial History of Suffolk County*. 1885.)
- Hedrick, U. P. *Sturtevant's Notes on Edible Plants*. Albany. 1919.
- Hinds, William Alfred. *American Communities and Cooperative Colonies*. New York. 1908.
- Hodgson, Adam. *Letters from North America*. London. 1824.
- Holmes, G. K. *Aboriginal Agriculture—The American Indians*. (In *Bailey's Cyclopedia of American Agriculture*, IV, 24–38. 1909.)
- *Progress of Agriculture in the United States*. (In *United States Department of Agriculture Yearbook*, 1899, 307–334.)
- Hotchkin, J. H. *History of Western New York*. New York. 1848.

## A HISTORY OF AGRICULTURE

- Irving, Washington. *Wolfert's Roost*. New York. 1855.  
—— *Sketch Book*. New York. 1860.
- Jefferson, Thomas. *Notes on Virginia*. Philadelphia. 1731.  
—— *Description of a Mould-board of the Least Resistance, and of the Easiest and Most Certain Construction*. (In *American Philosophical Society, Transactions*, IV, 313–322. 1799.)
- Josselyn, John. *New England Rarities*. London. 1671.
- Kalm, Peter. *Travels into North America, Containing Its Natural History and a Circumstantial Account of Its Plantations and Agriculture in General*. London. 1749.
- Kendall, Edward Augustus. *Travels Through the Northern Parts of the United States*. New York. 1809.
- Kittredge, G. L. *The Old Farmer and His Almanack*. Cambridge. 1920.
- La Rochefoucauld-Liancourt. *Travels Through the United States of North America*. London. 1799.
- Lincklaen, John. *Journals*. New York. 1897.
- Lodowick, Charles. *New York in 1692*. (In *New York Historical Society Collections*, 2d Series, I.)
- Marryat, Capt. C. B. *A Diary in America*. London. 1839.
- Maude, John. *Visit to the Falls of Niagara*. London. 1826.
- Maxwell, A. M. *A Run Through the United States*. London. 1841.
- McMaster, John Bach. *History of the People of the United States*. New York. 1885–1913.
- McMasters, Guy H. *History of Steuben County*. 1853.
- Melish, John. *Travels Through the United States of America, 1806–1811*. Philadelphia. 1815.
- Mershon, W. B. *The Passenger Pigeon*. New York. 1907.
- Miller, Merritt Finley. *The Evolution of Reaping Machines*. (In *United States Department of Agriculture Office of Experiment Stations Bulletin No. 103*. 1902.)
- Morgan, L. H. *League of the Iroquois*. Rochester. 1851.  
—— *Third Annual Report, Regents of the University*. Albany. 1850.
- Munroe, R. *Description of the Genessee Country*. New York. 1804.
- New York Board of Agriculture *Memoirs*. Albany, 1821–1826.
- New York. *Documents Relative to the Colonial History of the State of New York*. (See O'Callaghan, E. C., Editor.)
- New York Farmer* (monthly), New York, 1826–1837.
- New York Historical Society. *Collections*. New York. 1811–1859.



## BOOKS HELPFUL TO THE AUTHOR

- New York Society for the Promotion of the Useful Arts. Transactions.*  
New York. 1792–1810.
- New York State Agricultural Society. Transactions.* 1841–1897.
- The Northern Traveller and Northern Tour.* New York. 1834.
- O'Callaghan, E. C. (editor). *Documents Relative to the Colonial History of the State of New York.* Albany. 1853–87.
- *Documentary History of the State of New York.* Albany. 1849–1851.
- Onderdonk, Henry. *Ancient Agriculture in Hempstead (Queens County), New York.* Jamaica, New York. 1867.
- O'Reilly, Henry. *Sketches of Rochester.* Rochester. 1838.
- Palmer, John. *Journal of Travels in the United States of North America and in Lower Canada.* London. 1818
- Parkman, Francis. *A Half Century of Conflict.* Boston. 1892.
- Parkinson, Richard. *A Tour in America.* London. 1805.
- Pickering, Joseph. *Inquiries of an Emigrant.* London. 1832.
- Philosophical Transactions, Royal Society, London,* 15. 1685.
- The Ploughboy (weekly)* Albany. 1819–1823.
- Prince, William, and Son. *The Flushing Silk Journal.* Flushing. 1839.
- Power, Tyrone. *Impressions of America.* London. 1836.
- Report of Domestic Horticultural Society.* Lyons. 1831.
- Robinson, Charles E. *A Concise History of the United Society of Believers Called Shakers.* Albany. 1893.
- Seaver, Jas. E. *A Narrative of the Life of Mary Jemison.* Canandaigua. 1824.
- Shirreff, Patrick. *Tour Through North America.* Edinburgh. 1835.
- Simms, J. R. *The Frontiersmen of New York.* Albany. 1882.
- Smith, William. *History of the Province of New York.* New York. 1829.
- Spafford, H. G. *Gazetteer of New York.* Albany. 1813.
- Stiles, Henry Reed. *Bundling.* New York. 1868.
- Stuart, James. *Three Years in North America.* Edinburgh. 1833.
- Sutcliff, Robert. *Travels in Some Parts of North America.* York. 1811.
- Taylor, John. *Journal on a Mission through the Mohawk and Black River Country.* 1802. (In O'Callaghan's *Documentary History of New York*, III, 1107–1150. 1850.)
- Thomas, David. *Travels Through the Western Country.* Auburn. 1819.
- Thomas, R. B. *Farmers' Almanack.* 1791 and later.
- Thompson, Benjamin Franklin. *History of Long Island.* New York. 1843.

## A HISTORY OF AGRICULTURE

- DeToqueville, Alexis. *Democracy in America*. Translated by Henry Reeve. London. 1835-1840.
- True, A. C. *A History of Agricultural Education in the United States, 1785-1925*. Washington. 1929.
- Turner, Orsamus. *History of the Phelps and Gorham Purchase*. Rochester. 1852.
- *Pioneer History of the Holland Purchase of Western New York*. Buffalo. 1849.
- Underhill, R. L. *Memoir of Jemima Wilkinson*. Bath. 1844.
- Van Der Donck, Adriaen. *Description of the New Netherlands, 1656*. (In *New York Historical Society Collections*, 2d Series, I, 125-242. 1868-.)
- Van Wagenen, Jared, Jr. *Golden Age of Homespun*. New York State Department of Agriculture and Markets Bulletin No. 203. 1927.
- Volney, C. F. *A View of the Soil and Climate of the United States of America*. Philadelphia. 1804.
- Watson, Elkanah. *Canals and Agriculture*. Albany. 1820.
- *History of the Berkshire Agricultural Society*. Albany. 1820.
- *Men and Times of the Revolution*. (Edited by Winslow C. Watson.) New York. 1856.
- Weld, Isaac, Jr. *Travels Through the States of North America*. London. 1799.
- Wheeler, Cyrenus, Jr. *Inventors and Inventions of Cayuga County, New York*. Auburn. 1882.
- Willers, D. *Centennial Historical Sketch of the Town of Fayette, Seneca County, New York*. 1900.
- Willich, A. F. M. *Domestic Encyclopedia*, by James Mease. Philadelphia. 1804.
- Wooley, Charles. *A Two Years Journal in New York, and Part of Its Territories in America, 1679*. Reprint, New York. 1860.
- Wood, Silas. *Sketch of Long Island*. Brooklyn. 1828.
- Wright, A. H. *Old Northampton in Western New York*. Ithaca. 1929.
- Young, Andrew W. *History of Chautauqua County*. Buffalo. 1875.



## INDEX





## INDEX

- Ada grape, 390  
 Adams, John, 327; quoted, 232  
 Adams & Company Express, 267  
 Agricultural book, first in America, 322  
 Agricultural college, movement for, 418  
 Agricultural cooperation, 436  
 Agricultural depressions, 439  
 Agricultural efficiency, 441  
 Agricultural information in almanacs, 314  
 Agricultural journals, beginning of, 318  
 Agricultural legacy of the colonies, 64  
 Agricultural literature, early, 317  
 Agricultural organizations, 112  
*Agricultural Reader*, 327  
 Agricultural schools, beginning of, 417  
 Agricultural science in the 1790's, 408  
 Agricultural science institutions, beginning of, 411  
 Agricultural settlement, plan for, 106  
 Agricultural society, first, 86, 113  
 Agricultural Society of South Carolina, 116  
 Agricultural societies, oldest, 116  
 Agriculture, beginnings of, 25, 65; benefits of canals to, 253; changes in, since Civil War, 215; colonial, importance of oxen in, 356; early impediments, 112; early status of, 64, 67; effect of industrial revolution on, 288; effect of land policies on development, 53; effects of railroads on, 261, 266; influence of Shakers on, 275; need of animals in, 355; new era opens up, 112; New York, competition with, 241; readjustments of, 433; State aid to, 405; suggestion for U. S. Department of, 130  
 Agriculture and religion, inter-relations of, 269  
 Agriculture and roads, 165  
 Agriculture at its best in New York, 214  
*Albany Argus*, 321  
 Albany Horticultural Society, 321, 385  
 Albany Institute, 118  
*Albany Register*, 318  
 Alcoholic beverages, 155  
 Ale, 158  
*Alexander, the*, 240  
 Alfalfa, 345  
 Alfred University, 281  
 Allen, John, 323  
 Allen, Lewis F., 383  
 Almanac, first American, 312  
 Almanacs, farmer's, comment on fairs, 126; patent medicine, 314; as sources of agricultural information, 314  
 Amateur fruit growers, 382  
*American Almanack and Repository of Useful Knowledge*, 312  
*American Dictionary of the English Language*, 311  
*American Fruit Culturist*, 322  
*American Gardener*, 328  
*American Gardeners' Calendar*, 326, 402  
 American Philosophical Society, 116, 151  
 American Pomological Congress, 385  
 American Pomological Society, 382  
 Ancients, the, as agricultural authorities, 323  
 Anesthetics, 196  
 Animal husbandry, debt of, to New York, 379  
 Animals, need of, in agriculture, 355  
 Annin, Joseph, 178  
 Anthony, Susan B., 284  
 Anti-rent war, 57, 60  
 Apples, 71; export of, 396; sweet, as a source of sugar, 152  
 Apples used chiefly for cider, 225  
 Apples originating in New York, 389  
 Architecture, rural, 214  
 Arkport, decline of, 254  
 Arrow-head making a big industry, 35  
 Artichoke, Jerusalem, culture by Indians, 28  
 Astor, John Jacob, 62  
 Astronomy, relation to sheep herding, 371  
 Auburn as center for manufacture of reapers, 299  
 Auctions, rural, 212  
 Axe, praise for, 110  
 Ayrshires, 369  
 Babcock, S. M., 365  
 Babcock test, 365  
 Bagnall, Richard, 336  
 Bailey, Hachaliah, 211  
 Bailey, L. H., 322, 323  
 Baltimore, market for New York farm products, 105  
 Bancroft, George, 430  
 Barberry and stem-rust of wheat, 333  
 Barclay, Captain, quoted, 367  
 Barge Canal, 249  
 Bark-peeling, 141  
 Barley, 337; malting, 158  
 Barlow, Joel, quoted, 206  
 Barnum, P. T., 213  
 Barrel making, 137  
 "Barrel plow," Washington's, 295  
 Barry, Patrick, 386, 388, 394; quoted, 392, 396  
 Bartram, John, 383, 396, 404  
 Bateham, M. B., 321  
 Bath, decline of, 253; plans for, 61  
*Bay Psalm-book*, 307  
 Beal, Moses, 174  
 Beall, Archibald and Zebedee, 353  
 Beans, culture by Indians, 26; origin of, 25, 342  
 Bedford hog, 375  
 Beef cattle, 363, 369  
 Beekman, John P., 44, 49, 321, 324  
 Beer, 156, 224; Indian, 34  
 "Bees," 205  
 Bees, honey, introduction of, 223; "lining," 223  
 Beet sugar, 151  
 Bellemont, Earl of, quoted, 44  
 Belnap, Jeremy, quoted, 167  
 Berkeley, Governor, quoted, 307  
 Berkshire County Fair, 124  
 Berkshire system, book on, 130  
 Berkshires, 375  
 Berries, 10, 71  
 "Betty" lamp, 192  
 Binding out, 78  
 Bittern pans for salt making, 155  
 Black-ash, 139  
 Black Hamburg grape, 393  
 Black raspberry growing, 391  
 Black River Canal, the, 250  
 Blacksmith shop, the, 144  
 Black stem-rust of wheat, 333  
 "Blasting" of wheat, 333  
 Bloodgood pear, 389  
 Bloomer, Amelia, 284  
 Board of Agriculture, 118, 119, 122, 129, 131; reports of, 318

# INDEX

- Boiling down salt, 154  
 Bolting Act, 66  
 Bonaparte, Joseph, 88  
 Book, first printed in New York, 307  
 Booker, Wm., 304  
 Books, cost of, 315; gift, 316  
 Books on the farm, 315  
 Books on travel as sources of agricultural information, 327  
 Boon, Gerrit, 86; maple sugar project of, 148  
 Bordeaux mixture, 400  
 Borden, Gail, 364  
 Bordley, John Beale, quoted, 152  
 Borrowing fire, 190  
*Bos*, 363  
 Bostwick, William, 390  
 Boundaries of New York, Massachusetts, and Connecticut, 42  
 Boussingault, 411  
 Bouwerie, the, 156, 380  
 Boyce, Joseph, 297  
 Bradford, William, 307  
 Brandies, 158  
 Brandy, 224  
 Brewer, William Henry, 419  
 Breweries, 224  
 Brewing, 156, 158; disrepute of, 227  
 Brewery, first in New York, 156  
 Bridgeman, 388  
 Bridges, 170; construction of, 178; list of, in 1807, 170; stone, 178  
 British influence on New York agriculture, 90  
 Broom corn, 164  
 Brown, Amos, 419  
 Brown, John, 123, 368  
 "Brush-drag," 293  
 Buckeye mower, 302  
 Buckwheat, 337  
 Buel, Jesse, 321; 336, 350, 418; editor of *Cultivator*, 120; first secretary of State Agricultural Society, 120; quoted, 385  
 Buffalo and State Line railroad, 259  
 "Bundling," 235  
 Burr, Aaron, 236  
 Burwell, Dr., 419  
 Busti, Paul, 60, 86  
 Butter, 69, 364  
 Butter tubs, 138  
  
 Cabinet-makers, 138  
 Cabot, John, 2  
 Camp meetings, 270  
 Campbell, Samuel, 370  
 Canal, first in the State, 242  
 Canal system, first printed proposal for, 242  
 Canals, 236; beneficial to agriculture, 253; detrimental effects, 253; effect on stagecoach, 186; interest in, 242; relation of, to railroads, 256  
 Canalboats, 246  
 Cane sugar, compared with maple sugar, 151; manufacture of, 151  
 Capital required for farming, 109  
 Cartier, Jacques, 1, 27  
 Cassine or "black drink," 33  
 Castorland, 87  
 Catalogs, seed and fruit, 314  
 Cattle, beef, 363  
 Cayuga and Seneca lakes, connected with Erie Canal, 251  
 Cayuga bridge, 177  
 Cayuga Bridge Company, 178  
 Cazenove, Theophile, 60, 86  
 Champlain, 27  
 Champlain Canal, the, 249  
 Character of early settlers in western New York, 92  
 Charcoal, 143  
 Charred corn, 24  
 Chassanis, Pierre, 87  
 Cheese, 364  
  
 Chemistry, application of, to agriculture, 324  
 Chemung Canal, 251  
 Chenango Canal, the, 250  
 Chenango Strawberry apple, 389  
 "Chenangoes," 247  
 Cherries, 71  
 Chester County Whites, 375  
 Chever, Samuel, 420  
 Cheviots, importation of, 373  
 Chillblains, suffering from, 103  
*Christian Visitant*, 318  
 Cider, 71, 225; a commodity of exchange, 226  
 Circus, origin of, 211  
 City and country, antagonism between, 434  
 Clams, 136  
 Clay, Henry, 327, 420  
 Clearing land, method of, 98  
*Clermont, The*, 236  
 Clinton, DeWitt, 243, 245, 329, 406, 417; quoted, 175, 186, 228, 372  
 Clinton, George, 113  
 Clinton, Governor, 129  
 "Clinton's Ditch," 244  
 Clothing, poorness of, 70  
 Clover, 343  
 Clydesdales, importation of, 360  
 Coal, 240  
 Coarse Salt Company, the, 154  
 Cobbett, William, 328, 387; quoted, 159, 221, 227, 341, 351  
 Cock fighting, 376  
 Coe, Stephen, 342  
 Coe, Tunis H., 342  
 Coffee substitutes, 225  
 Coffee tree, culture by Indians, 27  
 Colden, Cadwallader, 242, 405  
 Coles, Christopher, 242  
 College of Home Economics, 425  
 Collison, Michael, 396  
 Collison, Peter, 396  
 Colonies, agricultural legacy of, 64; description of early American, 12  
 Columbia College, agricultural subjects in, 117  
 Columbia pear, 389  
 Combine-reaper, economic significance of, 287  
 Committee of Forfeiture, 62  
*Compagnie de New York*, 87  
 "Compound," 362  
 Comstock, Nathan, 283  
 Condenser, vacuum, invention of, 364  
 Conestogas, 357  
 Conflict between English, Dutch, and Germans, 65  
*Connecticut, The*, 246  
 Connecticut Agricultural Experiment Station, beginning of, 413  
 Connecticut Line, 237  
 Cook, Charles, 420  
 Cooking, 218  
 Cooper, James Fenimore, quoted, 8, 41, 231  
 Cooper, William, maple sugar project of, 149; quoted, 101  
 Cooperage, 137  
 Corduroy roads, discomforts of, 182  
 Corn, 23, 67; advantages of, to the pioneer, 335; broom, 164; cribs, 33; culture by the Indian, 25; early culture, 335; food products made from, by the Indians, 24; kinds grown by the Indian, 336; mortars for pounding, 68; sheller, economic importance of, 287; sweet, 23, 336  
 Cornell, Ezra, 268, 421, 423  
 Cornell Experiment Station, 423, 424  
 Cornell University, beginning of, 421  
 Corning, Erastus, 260  
 Cost of clearing land, 110  
 Cotswolds, importation of, 373  
 Cotton, John, 309  
 County fairs, 429  
 Country food and drink, 217  
*Country Gentleman*, 319  
 Country life, 189



# INDEX

- Country newspaper, the, 317  
Country store, description of, 202  
Coventry, Doctor, quoted, 103  
Cow, the, 362  
"Cow Neck," 113  
Cows, 69  
Coxe, Tench, plan for agricultural settlement, 106; quoted, 141, 150  
Coxe, William, 226  
Cradle, grain, 296  
Cranberries, 10  
Crooked Lake Canal, 251  
Crop rotation, 74, 348  
Crops, farm, 330  
Crops of the Iroquois, 23  
*Cucurbita Pepo*, 26  
*Cultivator, The*, 321; official publication of State Agricultural Society, 120  
Cultivators, 294  
Cutworm, Indian remedy for, 36
- Dairy Commission, 425  
Dairy cows, breeds of, in New York, 367  
Dairy sanitation, development of, 366  
Dairying, beginning of, 363; development of, 364  
Danforth, Asa, 154  
Danforth, John, 154  
Darwin, Charles, 346  
Davies, 370  
Davy, Sir Humphrey, 411  
Day Line, 237  
Deane, Samuel, 325; quoted, 397  
Death, ravages of, 103  
De Bore, Etienne, 151  
DeCandolle, classification of cultivated plants by, 330  
De Chateaubriand, Viscount, 19; quoted, 229  
De Chaumont, James D. LeRay, 87, 120; first president of Agricultural Society, 120  
Delafield, John, 115, 324, 349, 418  
De Laval, 365  
Delaware and Hudson Canal, 252  
Domestic Horticultural Society, 384  
De Norville, 23  
Denton, Daniel, quoted, 163, 223  
Department of Agriculture, beginning of, 131  
Department of Agriculture and Markets, 425  
De Saussure, Theodore, 346  
De Witt, Benjamin, 118; quoted, 168  
De Witt, Simeon, 115, 243, 417  
DeWitt Clinton train, 255  
Discrimination of New York City against rural New York, 66  
Diseases, 193  
Distilled liquors, 158  
Distilleries, 224  
Diversification in agriculture, 119, 439  
Dix, John A., 430  
Dobbin, Anthony, 173  
Doctors, early, 195  
Dog, place in Indian life, 21  
Dongan, Thomas, 64  
Dongan, Governor, 307  
Doolittle, H. H., 391  
Doolittle black raspberry, 391  
"Doolittle's Improved Blackcap," 391  
Douglas, Stephen A., 430  
Dow, Neal, 285  
Downing, Andrew J., 388, 393, 400; quoted, 402  
Downing, Charles, 393  
Drainage, tile, 349  
Drake, Rodman, quoted, 407  
Drake, Sir Francis, 341  
Drew, Daniel, 260  
Drink, 217  
Drinking, 224  
Duane, James, 113  
Duane plum, 389  
Ducks, 378  
Duke of York, 2, 64
- Duncan, John M., quoted, 172, 177  
Dunn, Christopher, 373  
Duroc-Jerseys, 375  
Dutch, influence on New York agriculture, 85  
Dutch farmers, 84  
Dutch grants, 43  
Dutch settlement of New Amsterdam, 1  
Dwight, Timothy, quoted, 103, 195, 234, 333  
Dysentery, epidemics of, 103
- Eagle Line, 237  
Early homes in western New York, 97  
Early Joe apple, 389  
Early Rose, 342  
Eastern Indians turn to fishing, 23  
Eaton, Amos, 412  
Eaton, Orsamus, 187  
Edict of Nantes, 88  
Efficiency, disadvantages of, 441  
"Eighth Dutchess of Geneva," 370  
*Elements of Scientific and Practical Agriculture*, 327  
*Elements of Scientific Agriculture*, 323  
Elephant, first in America, 211  
Elgin Botanic Garden, 382, 404  
Eliot, Jared, 322; quoted, 323  
Eliot, John, 323  
Ellicot, Joseph, 86  
Ellwanger and Barry nursery, 387  
English claim to New Netherland, 2  
English grants, 43  
English sparrow, introduction of, 401  
Ensilage, 365  
*Enterprise, The*, 240  
*Epilobium canadensis*, 23  
Erie Canal, 153, 154, 176, 181, 239, 257; abandonment of New England farms due to, 247; beginning of, 245; dimensions of, 248; enlargement of, 248; financing of, 245; first proposed, 243; growth of cities along, 246; importance to agriculture and industry, 248; makes New York the Empire State, 248; opening of, 245; projector of, 115; source of prosperity, 246; surveys for, 243; transportation on, 246  
Erie and Northeast railroad, 259  
Erie railroad, 256, 257  
Esopus Spitzenburg apple, 389  
*Essays Upon Field Husbandry*, 323  
Essex Massachusetts Agricultural Society, 152  
Experiment Station, State, beginning of, 414; directors of, 417; merged with Agricultural College, 424; purpose of, 415  
Experiment stations, beginning of, 412  
Experiments, early laboratory, 409  
Express, railroad, 267
- Fads, 284  
Fairs, 429; act creating, 112; first in America, 123; importance of, 122; county, support for, 122; projector of, 115; State, beginning of, 122  
Families, large, 100  
Famines, 101  
Farm, pattern, proposed by Elkanah Watson, 131  
Farm animals, 68, 355  
Farm crops, 330; diversity of, 439  
Farm exhibit, first in the Province, 112  
Farm home, influence of Shakers on, 275  
Farm home a century ago, 189  
*Farm Implements and Farm Machinery*, 322  
Farm industries, 134  
Farm journals, special, 322  
Farm labor, requirements of, 350  
Farm library, a, 315  
Farm life, limitations of, a century ago, 189  
Farm life in the Colony, 75  
Farm machinery, competitive trials of, 299  
Farm machinery stimulated by world expositions, 300



# INDEX

- Farm organizations, beginnings of, 112  
 Farm products, prices paid for, 108  
 Farm rentals, 353  
 Farm tools, scarcity of labor as factor in development, 306  
 Farm wages, 352  
 Farm wife, ingenuity of, in utilizing foods, 217  
 Farm women, as nurse and doctor, 196  
 Farmer, an educated man, 199; an individualist, 215; and the printing press, 307  
*Farmer's Almanack*, 312  
*Farmer's Companion*, 321  
*Farmer's Instructor*, 321  
 Farmers' almanacs, 311  
*Farmers' Calendar*, 312  
 Farmers' institutes, 425; first to be held, 426  
*Farmers' School Book*, 327  
 Farming, capital required, 109  
 Farms, abandoned, 435  
 Fay, Elijah, 390  
 Fessenden, T. G., 403  
 Fertilizer industry, beginning of, 347  
 Fertilizer materials, 346  
 Fertilizers, 74; regulation of, 247; Washington's experiments with, 345  
 Field plum, 389  
 Fillmore, Millard, 290  
 Fish trade, 136  
 Fisk, James, 260  
 Fitch, Asa, 400  
 Fitch, John, 236  
 Fitzhugh, Peregrine, 353  
*Five Lessons for Young Men*, 319  
 Flax, 162  
 Flaxseed, 163  
 Flail, 303  
 Flowers, 72  
 Flowers of the forest, 11  
 "Flop-over" rake, 303  
 Floy, Michael, 384, 388  
*Flushing Farmer and Silk Culturist*, 160  
*Flushing Silk Journal*, quoted, 160  
 Food, 217  
 Food and drink, abundance of, 217  
 Food crops of the colonial period, 71  
 Food plants, factors that affect selection of, 330  
 Food plants of New York Indians, 31  
 Food products of the forests, 10  
 Foods, preservation of, 220  
 Forbush, E. B., 299  
 Forest, the, 1; asset or liability, 3; conquest of, 18; importance of sustaining industries supplied by, 18  
 Forest fires, 16  
 Forest products, 7, 137  
 Forests, early, description of, 5; effect on snows and rainfall, 15; effect on waterways, 16  
 Forests delayed settlement, 14  
 Forman, Joshua, 243  
 Forsyth, William, 328  
 Fox sisters, the, 283  
 Franklin, Benjamin, 74, 76, 122, 123, 191, 193, 312, 340, 396, 405; founder of American Philosophical Society, 116; quoted, 79, 82  
 Franklin lamp, 193  
 Franklin stove, 191  
 Fruit, harvesting and storing, 397  
 Fruit forcing as an industry, 393  
 Fruit growers, amateur, 382  
 Fruit Growers Society of Western New York, 386  
 Fruit trees, first use of arsenicals on, 401  
 Fruits, new, supplied by America, 391; small, 391; use in making brandy and cider, 158; wild, 380  
 Fruits grown in colonial New York, 72  
 Fruits originating in New York, 388  
 Frederick the Great, interest in potatoes, 339  
 Frederick, William, 339  
 French claim, first, 1  
 French influence on New York agriculture, 87  
 French, Richard, 297  
 Fulton, Robert, 236, 237  
 Fulton-Livingston Company, 237  
 Fur trade, 9  
 Furs, source of revenue, 134  
 Gaine, John, 307  
 Game cocks, 376  
 Game, neglect of, in early days, 135  
*Gardners' Monthly*, 395  
 Gardens, ornamental, 404  
 Garnet Chile, 342  
 Gate-rights, 113  
 Gates, Horatio, 115  
 Geddes, George, 324  
 Geddes, James, 154, 243  
 Geese, 378  
 Genesee country, epidemics in, 104; reasons for delay in development, 53  
*Genesee Farmer*, 319  
 "Genesee fever," 193  
 "Genesee Pike," 176  
 Genesee Valley, horse breeding in, 360  
 Genesee Valley Canal, 251  
 Genesee Valley Horticultural Society, 386  
*Gentleman and Gardener Kalendar*, 402  
 German bee, introduction of, 223  
 Germans, influence on New York agriculture, 90  
 Germination experiment, an early, 410  
 Gift books, 316  
 Gilbert, Uri, 187  
 Ginseng, 136  
 Girls, schooling for, 199  
 Goff, John B., 285  
 Goods, prices paid for, 108  
 Goods for sale in Albany shops in 1784, 201  
 Goodrich, Chauncey E., 342  
 Goold, James, 187  
*Goot Vrow, The*, 85  
 Gore, the, 60  
 Gorham, Nathaniel, 60  
 Gosnold, 331  
 Gospel, tracts reserved for, 49  
 Gould, J., 260  
 Gourds, use by Indians, 26  
 Governors, early, 44  
 Grafting, 396  
 Grains, marketing as whiskey, 158  
*Grammatical Institute of the English Language*, 310  
 "Granery of the Iroquois," 24  
 Grange, founding of, 132; growth in this State, 132  
 Grapes, 390; dusting with sulphur, 400; wild, 10  
 Graves, Alonzo, 327  
 Great Lakes, influence on development of State, 239  
 Great Western Turnpike, 179  
 Greeley, Horace, 130, 421, 431  
 Green Corn Festival, 24  
 Green Gage plum, 381  
 Gristmills, 145  
 Ground nut, use by Indians, 29  
 Guano, 347  
 Gueii plum, 389  
 Guernseys, 369  
 Gurnsey, James B., 386  
*Gymnocladus canadensis*, 27  
 Hail rods, 402  
*Half Moon, the*, 1  
 Hall, James, 327  
 Hall, Talmadge, 171  
 Halleck, Fitz-Greene, quoted, 407  
 Halsey, F. W., quoted, 108  
 Hamilton, Alexander, 131, 151  
 Hamilton, William, 382  
 "Hamiltonian," 358  
 Hampshire Downs, importation of, 373  
 Hangings, public, 213



# INDEX

- Hanson, Timothy, 344  
 Harmonists, 276  
 Harnden, William Francis, 267  
 Harnden & Company Express, 267  
 Harris, Benjamin, 308  
 Harris, John, 178  
 Harrows, development of, 293  
 Hawkins, John T., 297  
 Hawley, Jesse, 243  
 Hay, 344  
 Heating a hundred years ago, 190  
*Helianthus annuus*, 28  
 Helms, Thomas, 353  
 Hemp, 162  
 "Henry Homespun," 318  
 Herefords, 370  
 Herendeens, the, 284  
 Hessian fly, 332, 334  
 Highland Patent, 62  
 Highland Turnpike Company, 172  
 Hills Chili peach, 389  
 Hobart, John Sloss, 113  
 Hodge, Benjamin, 383  
 Hodgson, Adam, quoted, 232  
 Hogs, 71; products from, 220  
 Holland Documents, 163  
 Holland Land Company, 60, 85, 148; importations of Holsteins by, 367  
 Holland Purchase, towns on, 106  
 Holmes, Oliver Wendell, quoted, 315  
 Holsteins, 367; Miller herd of, 368  
 Hominy, 24  
 Hooker, C. M., 401  
 Hoopes, Josiah, 401  
 Hopkins, Mark, 421  
 Hopkins, Samuel, quoted, 35  
 Hops, 156  
 Horse, origin of, 21  
 Horse breeding, 356  
 Horses, 355; in North America, 21; running, 359; stagecoach, 186; trotters, 359  
 Horticulture, 380  
 Horticultural Society of Monroe County, 386  
*Horticulturist, The*, 394  
*J. H. Horton, The*, 240  
 Hosack, David, 115, 382, 384, 404, 406  
 Houlbrock Richard, 43  
 House, John, 175  
 Howlands, the, 284  
 Hoxie, Solomon, 368  
 Hudson, Henry, 1  
 Hudson, influence on development of State, 239  
 Hudson River railroad, 257  
 Huguenots, French, influence of, 88  
 Hunters, Irish, importation of, 360  
 Huntington, purchase of, 43  
 Hurons, 3  
*Husbandman's Guide*, 323  
 Hussey, Obed, 297  
 Hussey reaper, 298  
  
 Ice, 220  
 Imperial Gage plum, 381, 390  
 Incubators and brooders, introduction of, 377  
 Indian agriculture, 20, 23  
*Indian Bible*, 307, 323  
 Indian commerce, 35  
 Indian contributions to agriculture, 34  
 Indian uprisings, 96  
 Indian warfare delays settlement, 3  
 Indians, trickery in land deals with, 44  
 Individualism of the farmer, 215  
 Industrial plants of New York Indians, 31  
 Industrial revolution, effect on agriculture, 288  
 Industries, sustaining, on the farm, 134  
 Industrialization of agriculture, 441  
 Inland Lock Navigation Company, 244  
 Inn-keepers, 232  
 Inns, description of, 228; distinguishing signs, 228; diversions of, 233; food at, 231; mottoes on the walls, 230; service in, 230; sleeping accommodations, 229; suggestion to reduce number of, 235  
 Insect pests of orchards, 398  
 Insect pests of the forest, 15  
 Institutes, farmers', 425  
 International Harvester Co., 299  
 Inventions, farm, 290  
 Invitation to membership in first agricultural society in State, 115  
 Iroquois, 3, 20; agriculture of, 20  
 Irving, Washington, quoted, 76  
  
 Jacks, importations of, 361  
 Jay, John, 113  
 Jefferson plum, 385, 389  
 Jefferson, Thomas, 337, 380; quoted, 74  
 Jerseys, 368  
 Johnson, J. F., 430  
 Johnson, John, 349; quoted, 302  
 Johnson, Samuel W., quoted, 412  
 Johnson, Sir William, 50, 58, 80, 360  
 Johnstown Hall, 58  
 Jonathan apple, 389  
 Jordan, W. H., 379, 416  
 Josselyn, John, quoted, 26, 398  
  
 Kalm, Peter, quoted, 28, 163, 343  
 Kelley, Oliver Hudson, 132  
 Kello, 370  
 Kennedy, Thomas H., 384  
 Kennebec Agricultural Society, 116  
 Kieft, William, 2  
 King of Spain, 69  
 Kings College, agricultural subjects in, 117  
*Kingston Plebian*, 321  
 Kinney, John, 171  
 Kirby, William A., 299  
 Knickerbocker Dutch, 84  
 "Knight of Malta," 362  
  
 Labor, farm, 77; exactions of, 350  
 Labor, human, displaced by machinery, 287  
 Labor, prices paid for, 108; scarcity of, as a factor in development of farm tools, 306; supply, 51  
 Laborers, indentured, 77  
 Lady Sweet apple, 389  
 Lallemand, Father, 153  
 Lamps, 192; betty, 192; Franklin, 193; oil, 193  
 Land, 40; clearing by the Indian, 34; clearing, 98; cost of clearing, 110; military, 45, 63; prices paid for, 108; Tory, forfeiture of, 62  
 Land office, first in U. S., 60  
 Land policy, early, 40  
 Land speculation, 40  
 Large York peach, 389  
 LaSalle, 239  
 Lavoisier, 340, 411  
 Lawrence pear, 389  
*Laws of the Colony*, 307  
 Lawson pear, 389  
 Lawton blackberry, 391  
*Layman's Apology for the Appointment of Clerical Chaplains*, 319  
 LeBarron, 401  
 Lee, Mother Ann, 269, 273  
 Legacy, agricultural, of the colonies, 64  
 LeMoyne, Father, 154  
 Lewis, Harris, 426  
 Library, a, on the farm, 315  
 Liebig, 411  
 Life in the country, 189  
 Lighting a hundred years ago, 192  
 Limitations of Indian agriculture, 38  
 Lincklaen, Jan, 86  
 Lindley, George, 388  
 Linnaean Botanic Garden, 72, 381  
 Lintner, J. A., 400  
 Livestock breeding, 366



# INDEX

- Livestock industries, 355  
 Living standards on the farm, 437  
 Livingston, Edward, 113  
 Livingston, Robert, 57, 123, 345, 373  
 Livingston, Robert R., 113, 118, 237, 380  
 Log-boat, 289  
 "Log-rolling," origin of term, 110  
 Log sled, 289  
 Lombard plum, 389  
 London Company, 160  
 Longfellow, Henry Wadsworth, 36, 37, 38  
 Lotteries, 203; demoralizing effects of, 205; for roads, 165  
 Loubat, Alphonse, 388, 390  
 "Louis Napoleon," 360  
 Louis XVI, interest in the potato, 339  
 Louisiana Lottery, 203  
  
 Machinery, effect on agriculture, 437; farm, 287  
 Madder as a coloring matter, 164  
 Magazines on silk culture, 160  
 Mail carrying in colonial New York, 81  
 Maine liquor law, 285  
 Malaria, 193; epidemics of, 104  
 Malting, 158  
 Manor, meaning of, 56  
 Manorial rights, 56  
 Manors, list of, 50  
 Manure, 74  
 Maple sugar, compared with cane sugar, 151  
 Maple sugar making, 146; by the Iroquois, 35  
 Mappa, 86  
 Marie Antoinette, 340  
 Marryat, C. B., quoted, 153  
 Marshall, Humphrey, 404  
 Massachusetts land claims, settlement of, 59  
 Massachusetts Purchase, 51, 52  
 Matches, 192  
 Mather, Cotton, quoted, 273  
 Matthen, Father, 283  
 Maxwell, T. C., & Bros. nursery, 387  
*Mayflower, the*, 85  
 McAdam roads, 166  
 McClintock, Mary Ann, 284  
 McCormick, Cyrus H., 297  
 McCormick reaper, 298  
 M'Mahon, Bernard, 326, 402  
 McMasters, Guy H., quoted, 210  
 Mead, P. B., 395  
 Meares, Robert, 297  
 Meehan, Thomas, 397  
*Meleagris gallopavo*, 22  
*Meleagris mexicana*, 22  
 Melon apple, 389  
 Mendez, Antonio, 151  
 Menu for a Thanksgiving dinner, 217  
 Merino sheep, at first American fair, 123; introduction of, 113, 373  
 "Meslin," 338  
 "Messenger," importation of, 357  
 Messenger, Thomas, 373  
 Metcalf, John, 175  
 Midge, wheat, 332, 334  
 Migrations, 84  
 Military lands, 63  
 Militia days, 208  
 Milk, importance in racial development, 362  
 Milk adulteration, 366  
 Milk fat test, development of, 365  
 Mill Yard Tract, 44  
 Millardet, 400  
 Miller, Gerrit Smith, 367  
 Miller, William, 279  
 Millerites, 279  
 Ministers, importance of, in community, 209  
 Minit, Peter, 2, 43  
 Mitchell, Samuel Latham, 115, 117, 118, 407, 411  
 Mixed crops for cattle feed, 338  
 Mohawk and Hudson railroad, 255  
 Mohawk, the, as a highway, 244  
  
 Money transaction in colonial New York, 80  
 Money values in 1791, 80  
*Monthly Journal of Agriculture*, 322  
 Moon, effect on farm practices, 408  
 Morgan, Justin, 358  
 Morgans, development of, 358  
 Mormons, 278  
 Morris, Gouverneur, 243  
 Morris Reserve, 60  
 Morris, Robert, 60  
 Morris, Roger, 62  
 Morris, Thomas, 178  
 Morris Tract, towns on, 106  
 Morris White peach, 389  
 Morse, Samuel, 267  
 Mortars for pounding corn, 68  
*Morus multicaulis*, 160  
 Mosquito, the, 194; takes heavy toll, 15  
 Mott, Lucretia, 284  
 Mottoes on walls of inns, 230  
 Mower, 301  
 Mound builders, 38  
 Mulberry, 160; nurseries, 161; winter injury to, 162  
 Mules, 69, 361  
 Munroe, Robert, quoted, 109  
 Mynderse, Wilhelmus, 178  
  
 Narragansett pacers, 357  
*National Democrat*, 318  
 Nationalities of New York farmers, 84  
*Natural History of the State of New York*, 327  
 Nausamp, 68  
 Navigation on lakes of State, 240  
*New American Gardener*, 403  
 Newbold, Charles, 292  
*New-England Farmer, or Georgical Dictionary*, 325  
*New England Primer*, 307  
*New Genesee Farmer and Gardeners' Journal*, 321  
 New Jersey Historical Society, 332  
 New Jersey Society for Promoting Agriculture, Commerce, and Arts, 116  
 "New Jerusalem," 278  
 New Netherland, 2  
*New Orleans, The*, 241  
 New York, boundaries of, 65; geographical features, 4  
 New York agriculture at its best, 214  
 New York and Harlem railroad, 257  
 New York Central Railroad, 176  
 New York Central system, beginning of, 256, 258  
*New York Farmer and Horticultural Repository*, 319  
 New York Fruit Growers Association, 386  
 New York Historical Society, 163  
 New York Horticultural Society, 320, 384  
 New York State Agricultural Experiment Station, organization of, 414  
 New York State Agricultural Society, 319, 321; activities, 120; first president, 88; founding of, 120; hundredth anniversary, 120; objects, 120; prize essays, 324; report on wheat midge, 335; reports, 116, 118; sponsors farmers' institutes, 428; sponsors of agricultural college, 418; sponsors of State Fair, 121; topics discussed at early meetings, 115; trial of farm machinery by, 299  
 New York State Holstein-Friesian Association, 368  
 New York State Horticultural Society, 386  
 New York State Veterinary College, 424  
*Newport Mercury*, 318  
 Newspapers, beginnings of, 317  
 Newtown Pippin, exportation of, 396  
 Nicot, Jaques, 30  
*Nicotiana Tabacum*, 30  
*Nicotiana rustica*, 30  
 Night Line, 237



# INDEX

- Nitrate of soda, 346  
 North American Pomological Convention, 385  
 North River Association Line, 237  
 North River Line, 237  
 Northern Navigation Company, 242  
 Northern Spy apple, 389  
 Norton, John P., 323; quoted, 324  
 Nott, Eliphalet, 192  
 Noyes, John Humphrey, 281  
 Nurseries, 72, 381  
  
 O. & D. Transportation Company, 237  
 Oakwood Agricutlural Institute, 419  
 Oats, 337  
 "Ohio Trail," 178  
 Oil lamps, 193  
 "Old Bet," first elephant in America, 211  
 "Old French Road," 182  
 Oneida Community, 281  
 Oneida Lake Canal, the, 250  
 Oneida Lake Company, 250  
 Ontario county, early size of, 105  
*Ontario, The*, 241  
 Opium making, 164  
 Orange Turnpike, 173  
 Orchards, care of, 396; commercial, beginning of, 383; first in the State, 380; tillage, 397; pests, 398  
 O'Reilly, Henry, quoted, 212  
 Organizations, agricultural, 112  
 Ornamental horticulture, 403  
 Ornamentals, 190  
 Osborne, D. M., 299  
 Oswego Canal, the, 250  
 Otsego County Fair, 127  
 Otto, Jacob S., originator of payment in kind, 86  
 Oysters, 136  
 Oxen, 184; importance in colonial argiculture, 356  
  
 Palatinates, influence of, 89; German, 57  
 Palladius, 296  
 Papoon, first sweet corn variety, 336  
 Paris Exposition as a stimulus to farm machinery, 300  
 Paris green, 401  
 Parker, Jason, 175  
 Parkinson, Francis, quoted, 69, 71  
 Parkman, Francis, quoted, 5  
 Parmentier, A., 339, 384, 390  
 Pasteur, Louis, 365  
 Pasteurization, development of, 365  
 Pastures, lack of, 69  
 Patents, land, corruption in connection with, 53; early colonial, 44; legislation concerning, 51; size of, 51  
 Patrick, Matthew, 292, 420  
 Patroon, 42  
 Patroonship, meaning of, 56  
 Payment in kind, beginning of, 86  
 Peaches, 71, 381; budding, 381; originated in New York, 389; yellows, 398  
 Peacock, David, 292  
 Pearl-ash, 139  
 Pears, 71, 392; blight, 399; originating in New York, 389  
 Pemmican, 33  
 Pennock, Moses, 295  
 Pennsylvania Horticultural Society, 399  
 Pennsylvania settlers in Steuben county, 210  
 "People's College," 421  
 Percherons, importation of, 360  
 Perfectionists, 281  
*Peter Porcupine Papers*, 328  
*Phaseolus vulgaris*, 25  
 Phelps, Nathaniel, 60  
 Phelps, Oliver, 60  
 Phelps and Gorham Purchase, 44  
 Philadelphia Society for Promoting Agriculture, 116  
 Philipse, Frederic, 49  
 Philipse Patent, 62  
 Phillipe, Louis, 88  
*Philosophical and Practical Grammar of the English Language*, 311  
 Pickering, Timothy, 152  
 Pierce, William, 312  
 Pigeon roost, 8  
 Pigeons, passenger, 7  
 Pigs, 374  
*Pioneer, The*, 261  
 Pioneer women, outlook of, 76  
 Pirates, 78  
 Pitt, H. A., 305  
 Place names, origin of, 104  
 Plants, cultivated, origin, 331  
 Platt, Ananias, 174  
*Pleasures of Poverty*, 319  
 Pliny, quoted, 37, 296  
*Plough Boy*, 318  
 Plow, development of, 291; invention by Jethro Wood, 290; significance of, 287  
 Plum, Canada, culture by Indians, 27  
 Plum curculio, 399  
 Plums, 381, 389, 392  
 Pollination, 401  
 Pomological journals, 394  
 Pomological writers, 387  
*Poor Richard's Almanack*, 312  
*Poor Will's Almanack*, 314  
 Popcorn, 337  
 Poppy, opium from, 164  
 Pork packing, 374  
 Post roads, 82, 172, 176  
 Postage rates, 81  
 Potash, 74, 139; returns from, 110  
 Potash salts, 347  
 Potato beetle, 400  
 Potato blight, 342  
 Potatoes, development of industry in central New York, 247; introduction into Europe, 339; introduction into Ireland, 340; not grown by the Iroquois, 28; origin of, 339  
 Potter's fluid, 193  
 Powell, Thomas, 175  
*Poughkeepsie Guardian*, 321  
 Poultry, development of breeds, 377  
 Poultry raising, 377  
 Preemption line, 60  
 Prentiss, H. B., 342  
 Preserving foods, 220  
 Primate apple, 389  
 Prince, William, 72, 381, 387, 388  
 Prince's Gage plum, 381  
 Printing press and the farmer, 307  
 Prohibition, agitation for, 285  
 Promoters, "father" of, 106  
 Prune making, 27  
 Pruning, 396  
*Prunus nigra*, 23, 27  
 Public men and agriculture, 215  
 Pullman, George M., 261  
 Pullman car, invention of, 261  
 Pulteney, Sir William, 60  
 Pulteney Estate, 60, 61; towns on, 106  
 Pumpkins, culture by Indians, 26  
 Purdy, A. M., 388  
 Pursh, Frederick, 382  
  
 Quakers, 283  
*Quarterly Journal of Agriculture*, 322  
 Quincy, Josiah, 430  
 Quinine, 195  
  
 "Rag Apple the Great," 368  
 Railroads, 255; benefits of standard time to, 259; consolidation of, 260; effect on agriculture, 261, 266; effect on stagecoach, 186; facilities of, 260; opposition to, 262; relation of, to canals, 256  
 Rake, horse, 302  
 Raleigh, Sir Walter, 340

# INDEX

- Rapp, George, 276  
 Readjustments, 433  
 Reapers, 296  
 Recreations of a hundred years ago, 207  
 Red Cheek Melocatoon peach, 389  
 Red Gage plum, 381  
 Regulatory work, 347  
 Reisinger, Andrew, 390  
 Religion, place of, in New York farm life, 271  
 Religion and agriculture, inter-relations of, 269  
 Remedies of a hundred years ago, 195  
 Rensselaer Polytechnic Institute, 412  
 Rensselaerwyck Manor, 42  
 Rent wars, 57, 60  
 Rental of land, 353  
 Reynolds and Bateham nursery, 387  
 Richmond, Dean, 260  
 Roads, and agriculture, 165; as criteria of development, 165; construction, 166, 182; development in New York, 165; extent in 1807, 168; lotteries for, 165; McAdam, 166; toll, 165; travelers on, 184  
 Roberts, Isaac Phillips, 422, 426  
 Robinson, Beverly, 62  
 Rochester and Tonawanda railroad, 256  
 "Rochester rappings," 283  
 Rockefeller, John D., 290  
 Rogers, 327  
 Roosevelt, Franklin D., 382  
 Roosevelt, Nicholas J., 241  
 Root, General, quoted, 70  
 Rotations, 348  
 Rough Purple Chile, 342  
 Roughage, lack of, 343  
 Rowe, Asa, 387  
 "Royal Gift," 361  
 Rumsey, James, 236  
*Rural New-Yorker*, 322  
 Rural population, changes in, 433  
 Rush, Benjamin, 150, 152  
 Rutgers, Harman, 156  
 Rye, 338  
 Rysdyk, William M., 359  
  
 Salt, 152; boiling down, 154; industry at Syracuse, 153; tax on, 155  
 Salt making, introduction of bittern pans for, 155; relation to New York agriculture, 153; use of solar vats for, 154  
 Salts of potassium, 139  
 Samp, 68  
 Saunders, Richard, 312  
 Saunders, William, 400  
*Savannah, The*, 242  
 Sawmills, 139  
 Saxe, John G., quoted, 264  
 Schooling, extent of, a hundred years ago, 197  
 Schools, agricultural, beginning of, 417; country, 440; hundred years ago, 197; tracts reserved for, 49  
 Schuyler, David, 44, 49  
 Schuyler, General, 243  
 Science and agriculture, 405  
*Scientific Agriculture*, 327  
 Scientific agricultural literature, beginning of, 323  
 Scot, quoted, 332  
 Scotch-Irish migrations, 91  
 Scribner, F. Lamson, 400  
 Scythe, advantages of mower over, 302  
 Sea serpents, 213  
 Second Adventists, 279  
 Seed and plant importations, beginnings of, 130  
 Seed business, 403  
 Seed distribution, free, beginning of, 130  
 Seed drills, 294  
 Seeding, 294  
 Seeley, Jonas, 359  
 Seigneurie, meaning of, 56  
 Seneca and Cayuga lakes, connected with Erie Canal, 251  
 Seneca Turnpike, 176  
 Separator, milk, invention of, 365  
 Settlement of western New York, 96  
 Settlers from Pennsylvania, description of, 210  
 Seward, William H., 429  
 Seventh-Day Baptists, 279  
 Seymour, Horatio, 430  
 Shad, 136  
 Shakers, 164, 273; influence on agriculture and farm home, 275  
 Sheep, 69, 370; feeding, 373  
 Sheldon, James O., 370  
 Sheldon pear, 389  
 Shirreff, Patrick, quoted, 193  
 Shops, Albany, goods for sale in, 201  
 Shorthorns, 370  
 Sickle, 287  
 "Silk craze," the, 159  
 Silk culture, 160  
 Silk worms, 275  
 Silos, 365  
 Sinclair, Sir John, 326  
 Silver Lake sea serpent, the, 213  
 Sisson, George W., 369  
 Six Nations, 20  
 Slavery in New York, 51, 353  
 Slaves, 78, 80  
 Sleeping accommodations in inns, 229  
 Sleighs, 183  
 Smith and Powell, importation of Holsteins by, 368  
 Smith, Henry W., 295  
 Smith, J. Jay, 394  
 Smith, John, 166  
 Smith, Joseph, 278  
 Smith, W. & T., nursery, 387  
 Smith Orleans plum, 389  
 Snook, William, 159  
 Society for Promotion of Agriculture, Arts, and Manufactures, 113, 118; founders of, 113; invitation to membership, 115; reports, 317  
 Society for the Promotion of Agriculture, transactions of, 408  
 Society for Promotion of Useful Arts, 117, 119, 168; reports, 318, 381  
 Solar vats for salt making, 154  
*Solemn Warning Against Free Masonry*, 319  
 Solvay Process, 155  
 South Carolina Society for Promoting and Improving Agriculture, etc., 116  
 Southwell, Robert, 341  
 Southwick, Solomon, 318  
 Spaulding plum, 389  
 Spelling book, Webster's, 310  
 Spinning contests, 206  
 Spiritualism, 282  
 Squashes, culture by Indians, 26  
 Stagecoaches, builders, 187; drivers, 174; effect of canals and railroads on, 186, 260; effect of steamboats on, 237; fares, 171, 173, 176; horses for, 186; races between, 174; types, 172  
 Stage line, first in New York, 171  
 Standard of living on farms, 437  
 Standardbred, 358  
 Stanton, Elizabeth Cady, 284  
 State aid to agriculture, 405  
 State Fair, 429; interest of Luther Tucker in, 319; permanent location of, 431  
 Staves, 138  
 Steamboats, 236; consumption of wood by, 241; effect on stagecoaches, 237; factor in transporting farm produce, 238  
 Steam Navigation Company, 237  
 Steuben, Baron, 182  
 Stevens, Levi, 175  
 Stone, Lucy, 284  
 Store, country, description of, 202  
 Store, general, description of, 200  
 Storm, Thomas, 384  
 Stove, coal, invention of, 192



# INDEX

- Stove, Franklin, 191  
 Stoves, kitchen, 191  
 Sturtevant, E. Lewis, 369, 401, 414; classification of edible plants, 331  
 Stuyvesant, Peter, 2, 380  
 Succotash, 24  
 Suffolks, importation of, 360  
 Sugar, 222; early attempts to manufacture, 146  
 Sugar beet, early trials with, 151  
 Sugar, loaf, novelty of, 222  
 Sullivan, John, 94  
 Sulphur dust for grapes, 400  
 Summer breezes of 1816, 102  
 Sunday, observance of, 208  
 Sunflower, culture by Indians, 27; uses of, by Indians, 28  
 Superphosphates, 347  
 Surveyors, 41  
 Sustaining industries, 134  
 Swan, Jonathan, 284, 292  
 Swaar apple, 389  
 Swine, 374; breeds, 375  
 Syracuse salt industry, 153  
  
 Tanneries, 141  
 Tart Bough apple, 385  
 Taverns, distinguishing signs, 228  
 Tax on salt, 155  
 Taylor, John, 327; quoted, 226, 354  
 Tea, 225; Indian, 33  
 Teasels, 159  
 Telegraph, invention of, 267  
 Temperance movements, 233, 285  
 Tenant farmers, 353  
 Thomas, David, 284, 387  
 Thomas, John, 284, 321, 386, 387, 388; quoted, 396  
 Thomas, Robert B., quoted, 126, 263, 312  
 Thomas, William, 196  
 Thorburn, Grant, 384, 403  
 Thoroughbreds, 357  
 Thresher crews, 305  
 Threshing, 303  
 Threshing machine, first, 304  
 Tile, first in America, 349  
 Tile drainage, 349  
 Tillage systems, 348  
 Time, confusion in, 259  
 Timothy, 344  
 Tobacco, culture by Indians, 30; early culture, 29; introduction into Europe, 30; use of, by Indians, 29  
 Toll charges, 181  
 Toll-gate keepers, 176  
 Toll roads, 165  
 Tolls, canal, 248  
 Topics discussed at early meetings of first agricultural society, 115  
 Tory lands forfeited, 62  
 Towing, a profitable industry, 246  
 Towns built on waterways, 106  
 Towsley, Roswell, 292  
 Transportation, changes in, 436; development, 165  
 Trapping, 134  
 Travel, difficulties of, 167  
 Travel books, 327  
 Travel by railroad, 260  
 Treaties with the Indians, 44  
*Treatise on the Culture and Management of Fruit Trees*, 328  
 Treaty of Paris, 66  
 Treaty of peace with the Six Nations, 96  
 Trickery in dealing with the Indians, 44  
 Trotting horses, 357  
*Troy Budget*, 321  
 Troy Line, 237  
 Trumbull, Cary & Company, 61  
 Tuberculosis, 195  
 Tucker, Luther, 319, 394  
 Tull, Jethro, 348  
  
 Turkeys, 378; origin, 22  
 Turnpike Act, the, 182  
 Turnpikes, 165  
 Tustin, James, 173  
 Tyler, Comfort, 154  
 Typhoid, 195  
  
 Underhill, Robert, 390  
 Union Line, 237  
 "Universal Friend," 277  
 "Upsal," 326  
  
 Valk, William W., 390  
 Van Blecht, James, 154  
 Van Cortland, Philip, 44, 49, 113  
 Vanderbilt, Cornelius, 260  
 Van Der Donk, Adriaen, quoted, 374  
 Vanderkemp, Francis Adrian, 86, 406  
 Vanderkemp, John J., 60  
 Van Rensselaer, Killien, 42, 57  
 Van Rensselaer, Stephen, 412  
 Van Slyke, Lucius L., 416  
 Van Twiller, Wouter, 2  
 Van Wagenen, Jared, quoted, 296  
 Van Wyck, Isaac, 171  
 Varro, Marcus Terentius, quoted, 442  
 Vaughan, Charles, 116  
 Veazie, Charles, 187  
 Vegetable growing, 402  
 Vegetables, 72  
 Verrazzano, John, 1  
 Vick, James, 394  
 Villages, beginnings of, 104  
 Von Humboldt, Baron, 347  
 Von Liebig, Justus, 346  
  
 Wadsworth, James, 62  
 Wadsworth, James S., 63  
 Wadsworth, James W., 63  
 Wadsworth, Jeremiah, 62  
 Wadsworth, W. A., 63  
 Wadsworth, William, 62, 63, 254, 372  
 Wagener apple, 389  
 Wages, farm, 352  
*Walk-in-the-Water, The*, 241  
 Wardley, James, 273  
 Wardley, Jane, 273  
 Warren, Sir Peter, 50, 58  
 Warrensburg, 58  
 Washington, George, 69, 294, 326, 380; interest in mules, 361; proposal for national board of agriculture, 131; quoted, 74, 75, 95, 345, 361; thresher, 304  
 Washington plum, 381, 390  
 Wasson, J. D., 321  
 Watermelons as a source of sugar, 152  
 Waterways, 236; an aid to settlement, 97  
 Watson, Elkanah, 115, 122, 123, 125, 243, 319, 329, 418; importations of seeds by, 130; proposal for pattern farm, 131; quoted, 65, 95, 123, 124, 127  
 Watts, James H., 384  
 Webster, Daniel, 430  
 Webster, Noah, 310; spelling book, 198  
 Weld, Isaac, quoted, 194  
 West India Company, 42  
 Western Navigation Company, 242  
 Western New York, conditions at beginning of agriculture, 93  
 Western New York Horticultural Society, 386  
 Western turnpikes, 180  
 Whaling industry, 136  
 Wheat, 67; black stem-rust, 333; growing in New York, 332; insect pests, 332; introduction into America, 331; returns from, 110; winter, exhibited at Otsego County Fair, 129  
 Wheeler, Cyrenus, 302  
 Whiskey, 158, 224  
 White, Andrew D., 421; quoted, 422

## INDEX

- Whitehead, Daniel, 43
- Wilcox, Richard, quoted, 409
- Wilder, Marshall P., 382; quoted, 386
- Wilkinson, Jemima, 269, 277
- Willard State Hospital, 420
- Williams, Henry T., 395
- Williams, Hobart, 43
- Williams, Roger, 269
- Williamson, Charles, 178
- Wilson, William, 384, 388
- Wine, 225
- Wing, Hiram H., 379
- Winter suffering, 103
- Woburn hog, 375
- Wolf drive, 70
- Wolff, Emil, 412
- Wolves, bounties on, 70
- Women, increased activities of, 284
- Women's clothes, reform in, 284
- Women's rights, 284
- Women's Rights Convention, 284
- Wood, consumption of, by steamboats, 241
- Wood, Jethro, 284, 290
- Wood mower, 302
- Woodward, G. E., 395
- Woodward, J. S., 401, 426
- Wool growing, 372
- Working Farmer*, 322
- World's Fair, London, as a stimulus to farm machinery, 300
- Wright, Joseph A., 431
- Wright, Martha C., 284
- "Yankee," first recorded trotter, 359
- Yankees, debt of State to, 93
- Year's Residence in America, A*, 328
- Yellow Newtown apple, 389
- Young, Arthur, 326
- Young, Robert, 373
- Young, Thomas, 72, 381



















